DOMINION ENERGY VIRGINIA
STANDARDS & SPECIFICATIONS FOR EROSION & SEDIMENT CONTROL AND STORMWATER MANAGEMENT FOR CONSTRUCTION AND MAINTENANCE OF LINEAR ELECTRIC TRANSMISSION FACILITIES (TE VEP 8000)

Revision Date: May 29, 2019

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APPENDICES

1.0 STANDARDS AND SPECIFICATIONS ADMINISTRATION

Dominion Energy Virginia (Dominion Energy) is responsible for administering, implementing and complying with the Standards and Specifications for Erosion and Sediment Control (ESC) and Stormwater Management (SWM) for Electric Transmission Line Development and appurtenant facilities such as substations and switching stations. In accordance with Va. Code §§ 62.1-44.15:55.D and 9VAC25-870-170, this document serves as the submittal to the Virginia Department of Environmental Quality (DEQ) of Standards and Specifications developed so that Dominion Energy can continue to operate under Standards and Specifications for ESC and SWM. These Standards and Specifications for ESC and SWM shall be consistent with the requirements of the Virginia Erosion and Sediment Control Law and associated regulations and the Virginia Stormwater Management Act and associated regulations, where applicable. The specifications shall apply to applicable electric transmission projects pursuant to Va. Code §§ 62.1-44.15:55.D.1 and 62.1-44.15:31.B.1 of the Code of Virginia, which allow annual standards and specifications for "[c]onstruction, installation or maintenance of electric transmission, natural gas and telephone utility lines and pipelines, and water and sewer lines."

Dominion Energy is responsible for administering, implementing and complying with the Standards and Specifications for Erosion and Sediment Control (ESC) and Stormwater Management (SWM) for Linear Transmission Development which includes transmission lines and appurtenant facilities such as substations and switching stations.

Dominion Energy plans to obtain and comply with Construction General Permits (CGPs) for all of our projects with greater than one acre of disturbance that do not qualify for a waiver of the CGP (obtained via a Decline to Permit Letter issued by the DEQ) specified in DEQ Guidance Memorandum No. 15-2003 (GM 15-2003). GM 15-2003 provides guidance on stormwater implementation for linear utility projects under the Virginia Stormwater Management Program (VSMP). The guidance document describes general terms and conditions under which linear utility projects are expected to operate if they are to obtain the GM 15-2003 SWM Plan Waiver and a CGP Decline to Permit Letter. The review for applicability to the GM 15-2003 SWM Plan Waiver will be conducted by DEQ-certified Plan Reviewers prior to initiating land-disturbing activities and documented in a Formal Letter of Evaluation of consistency with GM 15-2003. The Formal Letter

of Evaluation will be included with the project Stormwater Pollution Prevention Plan (SWPPP) and submitted with the CGP registration statement, if applicable, and with the two-week project notification. Dominion Energy may be required by DEQ to produce documentation of water quantity or water quality evaluation to demonstrate the applicability of the GM 15-2003 SWM Plan Waiver. The evaluation may include site specific water quantity or quality calculations, review of the ESC Plan or SWPPP (e.g., rebuild projects in existing right-of-way), or evaluation of calculations developed for a comparable, representative project (e.g., case studies). In situations where the evaluation determines the project cannot obtain the GM 15-2003 SWM Plan Waiver, the stormwater-related technical criteria set forth in Section 3.4 in this document must be implemented. Any requests for a GM 15-2003 SWM Plan Waiver or CGP Decline to Permit Letter will be submitted in accordance with the applicable DEQ protocols.

The intent of this document is to establish general specifications for the control of erosion and sedimentation and SWM as a result of land-disturbing activities performed during the construction and maintenance of electric transmission lines and appurtenant facilities such as substations and switching stations. While these controls may not be required for exempted activities (e.g., individual service connections, disturbed areas of less than 2,500 square feet in Chesapeake Bay Preservation localities, disturbed areas of less than 10,000 square feet in all other localities, and installation of electric poles) they will be utilized if site-specific conditions warrant. All regulated land disturbance for linear transmission projects and appurtenant facilities such as substations and switching stations subject to the Virginia Erosion and Sediment Control Law (Va. Code § 62.1-44.15:51, *et seq.*), the Virginia Erosion and Sediment Control Regulations (9VAC25-840, *et seq.*), the Virginia Stormwater Management Act (Va. Code § 62.1-44.15:24, *et seq.*), the Virginia Stormwater Management Regulations (9VAC25-870, *et seq.*) and the Virginia Stormwater Management Permit Regulations (9VAC25-880, *et seq.*) shall comply with these Standards and Specifications for ESC and SWM as outlined in further detail below, unless otherwise exempted in Va. Code § 62.1-44.15:34 and Section 4.0 of this document.

These Standards and Specifications for ESC and SWM have been approved by DEQ. Dominion Energy is responsible for ensuring that individual project plans are developed and implemented in compliance with these Standards and Specifications and applicable laws and regulations. As a

holder of Standards and Specifications, Dominion Energy, rather than the individual localities in which the projects are located, is responsible for ensuring compliance with these Standards and Specifications for ESC and SWM for electric transmission projects through self-administration of these Standards and Specifications, including plan review, inspection, and overall compliance. Dominion Energy may be required to submit relevant project documentation and plans to DEQ for projects covered by these Standards and Specifications.

DEQ receives regular notifications of the work done by Dominion Energy, and will subsequently provide periodic inspections, including random inspections and inspections in response to complaints to assure compliance. Enforcement shall be administered by DEQ and the State Water Control Board (Board) where applicable. DEQ and the Board have the authority to enforce these specifications, to take enforcement actions, to perform project inspections and compliance inspections. Pursuant to Va. Code §§ 62.1-44.15:54.E. and 62.1-44.15:56.G, DEQ and the Board, where applicable, shall provide project oversight and enforcement as necessary and comprehensive program compliance review and evaluation for ESC activities. DEQ may take enforcement actions in accordance with this article and related regulations. Pursuant to Va. Code § 62.1-44.15:27.F for SWM activities, enforcement shall be administered by DEQ and the Board where applicable in accordance with the provisions of this article.

In accordance with Va. Code § 62.1-44.15:31.D (SWM), DEQ shall assess an administrative charge to cover the costs of services rendered associated with its responsibilities pursuant to this section. For ESC, the Board shall have the authority to enforce approved specifications and charge fees equal to the lower of (i) $1,000 or (ii) an amount sufficient to cover the costs associated with standard and specification review and approval, project inspections, and compliance (Va. Code § 62.1-44.15:55.D).

1.1 Project Tracking and Reporting

Dominion Energy is responsible for providing project tracking and electronic notifications to DEQ of all regulated land-disturbing activities subject to these Standards and Specifications to comply with applicable ESC requirements pursuant to 9VAC25-840-65 and applicable SWM requirements pursuant to 9VAC25-870-170.

The Dominion Energy project team must electronically notify DEQ of any Standards and Specifications land-disturbing project that Dominion Energy intends to construct in Virginia prior to initiating land disturbance. The following information is required to be included in the electronic notification two weeks prior to initiating the regulated land-disturbing activity (LDA):

i. Project name and any associated CGP number
ii. Project location (including nearest intersection, latitude and longitude, or access point)
iii. On-site project manager name and contact info
iv. Responsible Land Disturber (RLD) name and contact info
v. Project description
vi. Acreage of disturbance for project
vii. Anticipated project start and finish date
viii. Any deviations/variances/exemptions/waivers associated with this project
ix. Formal Letter of Evaluation for GM No. 15-2003 SWM Waiver, if applicable, and associated DEQ GM 15-2003 SWM Plan Waiver Approval Letter.

Notification must be made electronically to **StandardsandSpecs@deq.virginia.gov**. Other questions should be directed to Hannah Zegler (804-698-4206).

In addition to the prior land disturbance notification described above, Dominion Energy shall submit to DEQ, bi-annual linear project tracking of active projects that includes the acreage of non VSMP projects. This bi-annual linear project tracking shall be submitted by January 15 and July 15 of each year to **StandardsandSpecs@deq.virginia.gov**. The format for this bi-annual tracking will generally follow the template below.

VA DEQ Active Projects Tracking

Date

	Project Name	DEQ Project Number	Dominion Project Number	Dominion Permitter	2 week notification sent	Phase Description	acreage of land disturbance
sample	*Line X*	*VAR10-012345*	*NW995874*	*Name*	*1/3/2017*	*road installation*	2.1
sample	*Line X*	*n/a < 1 acre*	*WBS4258*	*Name*	*n/a*	*final stablization*	0.8
1							
2							
3							
4							
5							

Example: Active Project Bi-annual Tracking Template.

Under the CGP, if applicable, the operator shall post the notice of coverage letter at a publicly accessible location near an active part of the construction project (e.g., where the electric transmission line crosses a public road). The operator shall maintain the posted information until the termination of the general permit. The operator will also make the SWPPP available as follows:

1. Operators with day-to-day operational control over SWPPP implementation shall have a copy of the SWPPP available at a central location on-site for use by those identified as having responsibilities under the SWPPP.

2. The operator shall make the SWPPP and all amendments, modifications, and updates available upon request to DEQ as the VSMP authority, the Environmental Protection Agency (EPA), DEQ as the Virginia ESC Program (VESCP) authority, local government officials, and the operator of a municipal separate storm sewer system receiving discharges from the construction activity. If an on-site location is unavailable to store the SWPPP when no personnel are present, notice of the SWPPP's location must be posted near the main entrance of the construction site.

The operator shall make the SWPPP available for public review in an electronic format or in hard copy. Information for public access to the SWPPP shall be posted and maintained in accordance with Part II C of the CGP. If not provided electronically, public access to the SWPPP may be arranged upon request at a time and at a publicly accessible location convenient to the operator or his designee but shall be no less than once per month and shall be during normal business hours.

Information not required to be contained within the SWPPP by this general permit is not required to be released.

1.1.1 Stormwater Management

A CGP will be required for all applicable projects that do not meet the requirements for a GM 15-2003 CGP Decline to Permit Letter. SWM plans will be required for Dominion Energy projects when projects are unable to satisfy the terms and conditions contained in GM 15-2003 for a waiver of a SWM plan. As addressed in these Standards and Specifications, Dominion Energy will submit a Formal Letter of Evaluation of consistency with GM 15-2003 along with registration statements for applicable projects requesting a GM 15-2003 SWM Plan Waiver and approval of the request will be documented in a SWM Plan Waiver Approval Letter from DEQ.

When applicable, Dominion Energy will assure that SWM plans and associated Stormwater Pollutant Prevention Plans (SWPPPs) and CGP registrations statements are prepared, reviewed and approved prior to initiating regulated land-disturbing activities. The technical criteria for SWM are addressed in Section 3.0 of these Standards and Specifications for ESC and SWM.

1.1.2 Recordkeeping

Dominion Energy must keep records in accordance with the following:

- All individual project records, including approved plans, inspection reports, documented field changes, and CGP registration statements (if applicable) must be maintained for a period of three years after completion of the project or state permit termination. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to Dominion Energy, or as requested by DEQ.
- A construction record drawing for all permanent, structural SWM facilities (“as-built”) with seal and signature of a Virginia-licensed Professional Engineer must be maintained by Dominion Energy in perpetuity, or until the SWM facility is removed.
- SWM facility inspection records must be documented and retained for at least five years from the date of inspection.

- The Annual Standards and Specifications (AS&S) holder, Dominion Energy, shall maintain, either on-site or in AS&S files, a copy of the approved plan and a record of inspections for each active land-disturbing activity.

1.2 Plan Design, Review, and Approval

This section outlines requirements for ESC and SWM, along with applicable plan contents for review and approval by DEQ certified personnel (as described in Section 2 of this document) prior to initiating regulated land-disturbing activities.

1.2.1 ESC Requirements

Dominion Energy follows the policies and procedures described in the Virginia Erosion and Sediment Control Handbook (VESCH). Dominion Energy utilizes a comprehensive design, review and approval program that includes review for consistency with the general specifications for Minimum Standards and Specifications found in the VESCH. The general specifications for ESC apply to land-disturbing activities and are included in these Standards and Specifications by reference, as follows:

- Virginia Erosion and Sediment Control Law (Va. Code § 62.1-44, *et seq*.);
- Virginia Erosion and Sediment Control Regulations (9VAC25-840, *et seq*.);
- Virginia Erosion and Sediment Control and Stormwater Management Certification Regulations (9VAC25-850, *et seq*.);
- Virginia Erosion and Sediment Control Handbook, 1992, as amended, and related technical documents and guidance specifications;
- Technical Bulletins and Memos, as amended, on the DEQ website.

Plans must be reviewed and approved by DEQ certified personnel (*as described in Section 2, Personnel Roles and Responsibilities*) to ensure compliance with these Standards and Specifications for ESC and SWM and reviewed by Dominion Energy, or our contractor, for consistency with applicable permit and regulatory requirements. Any non-VESCH control measures, or deviations from the VESCH, incorporated into plans must include all applicable practical information including definition, purpose, conditions where practice applies, planning

considerations, design criteria, construction specifications, design tables and plates and maintenance/inspection requirements. Should non-VESCH control measures or deviations from the VESCH fail to effectively control soil erosion, sediment deposition, and non-agricultural runoff, then VESCH or other appropriate non-VESCH control measures shall be utilized. All documents submitted for review must include the appropriate information, as described below.

1.2.2 ESC Plan Contents

As applicable, ESC drawings must include the following:

a. VESCH Minimum Standards 1 through 19;
b. Total area of disturbance. If the project is phased, the total area of disturbance for each phase must be noted;
c. Proposed temporary or permanent impervious area, if any;
d. Construction sequence of operations with staged implementation of ESC measures for each phase;
e. Existing features that will be demolished or removed that may require ESC measures;
f. Location of various support activities including, but not limited to, areas where wash water may occur; storage area for chemicals, fuels and fertilizers; concrete wash out areas; vehicle fueling and maintenance areas; sanitary waste facilities and construction waste storage;
g. When applicable, the location of the on-site rain gauge must be included;
h. Any off-site areas, including borrow sites or storage yards. If these areas are not necessary to support the scope of the project, the plans should clearly state such. A storage yard may not necessarily involve land disturbance if the site is already stabilized and/or the materials are placed on mats.

1.2.3 SWM Requirements

Portions of these Standards and Specifications related to SWM shall apply to regulated land-disturbing activities without the GM 15-2003 SWM Plan Waiver and the GM 15-2003 CGP Decline to Permit Letter. The following requirements shall apply, when applicable, and are hereby incorporated by reference:

- Virginia Stormwater Management Act (Va. Code § 62.1-44, *et seq*.);
- Virginia Stormwater Management Permit Regulations (9VAC25-870, *et seq*.);

- Virginia Stormwater Management Handbook, 1999, as amended; and
- Virginia Erosion and Sediment Control and Stormwater Management Certification Regulations (9VAC25-850, *et seq.*);
- Technical Bulletins and Memos, as amended, on the DEQ website.
- DEQ Guidance Memorandum No. 15-2003 (GM 15-2003)
- Construction General Permit Regulation (9VAC25-880, *et seq.*)
- Standards and Specifications for stormwater practices as published on the Virginia Stormwater BMP Clearinghouse (http://www.vwrrc.vt.edu/swc/index.html).

1.2.4 SWM Plan Contents

ESC and SWM/SWPPP plans and documents must be submitted to the designated Plan Reviewer (defined in Section 2.0) for review and approval. Plans must be reviewed to ensure compliance with these Standards and Specifications for ESC and SWM.

If applicable, the SWM plan shall be implemented as approved or modified and shall be developed in accordance with the SWM Plan requirements outlined in Appendix G.

1.2.5 Variances

Request for variances to the ESC Minimum Standards will be considered by DEQ separately from the Standard and Specifications and will be considered on a project-specific basis. The following information needs to be included in variance requests:

a. Introduction
b. Project Description
c. Minimum Standards Variance Requests
d. Existing Conditions and Adjacent Areas Description
e. Soil Characteristics
f. Critical and Sensitive Areas (karst, wetland, etc.)
g. Mitigation
    - ESC Measures
    - Permanent Stabilization
    - Vegetative Restoration

- Maintenance

1.2.6 Revisions

All revisions to the approved ESC Plan or the approved SWM Plan for the project should be reviewed by the Construction Site Manager. Changes shall be documented and dated on the plans by the Dominion Energy Construction Coordinator/Contractor (as described in Section 2.0).

Any changes on the approved ESC Plan or the approved SWM Plan that would affect the CGP permit coverage shall be reported from field personnel to the assigned Permitter (as described in Section 2.0). The Permittee is responsible for notifying DEQ of such changes and obtaining subsequent modification approval.

1.2.7 Discretionary Items

DEQ may require, at their discretion, the following for specific projects:

1. Inspection reports conducted by Dominion Energy as well as complaint logs and complaint responses to be submitted to DEQ.
2. Dominion Energy may be required to provide weekly e-reporting to DEQ's applicable regional office:
    a. Inspection reports,
    b. Pictures,
    c. Complaint logs and complaint responses, and
    d. Other compliance documents
3. In addition to Dominion Energy's internal plan review, Dominion Energy may be required to submit individual project-specific plans to DEQ for review and approval.
4. The project-specific plan, DEQ approval, and supporting documents may be required to be posted on Dominion Energy's website for public view.

1.2.8 Third – Party Permit Review

A number of Electric Transmission projects serve new developments or are road improvement projects. Projects for new developments are to be installed in accordance with the Stormwater

Pollution Prevention Plan (SWPPP) or approved Erosion and Sediment Control Plan for that development, as applicable. Land disturbance in new developments cannot begin until pre-construction ESC controls are installed by the developer and/or builder as required by the SWPPP.

Dominion Energy has developed and is implementing a screening process for environmental review and permitting for Electric Transmission projects. The review addresses all environmental requirements for applicable projects including erosion and sediment (ESC) control and stormwater (SWM) approvals. The process intends to evaluate, confirm, and document when Dominion Energy project work is covered by permits obtained by others (e.g., Virginia Department of Transportation, a developer, or a locality). The process includes reviewing specific permit requirements with DEET construction staff. If an Electric Transmission project is covered by another entity's ESC and SWM controls and approvals (e.g. project developer ESC/SWM plans and permits and/or another entity's Standards and Specifications), the project is not intended to be covered by these Standards and Specifications.

2.0 PERSONNEL ROLES AND RESPONSIBILITIES

Dominion Energy shall be the plan approval authority and administrator for the Dominion Energy Standards and Specifications for ESC and SWM. A description of the expected administrative roles and associated required certifications is provided below. Note that roles may be combined for staff resource purposes as long as the person responsible for each task is fully qualified for all assigned roles. The ESC and SWM plans, where applicable, shall be maintained at all transmission construction projects and Dominion Energy shall ensure that the contractor is aware of their responsibility prior to starting any construction activities by covering the requirements during the pre-construction meeting. Dominion Energy shall provide quality assurance for the ESC and SWM plans as well as guidance, as needed, for implementation of ESC and SWM measures on all projects. Dominion Energy may enter into agreements or contracts with contractors to assist with carrying out the certification requirements set forth in the ESC and SWM laws and regulations.

All signatures shall be in accordance with the CGP Part III.K by a responsible corporate officer or a duly authorized representative. If the latter, a copy of the authorization form shall be included in the SWPPP.

Program Administrator – shall be responsible for the management and coordination of these Standards and Specifications for ESC and SWM. The Program Administrator shall be certified as a Program Administrator by DEQ or provisionally certified. This role may be completed by a third party as directed by Dominion Energy.

Plan Reviewer – shall be responsible for the review of ESC and SWM portions of project plans for compliance with these Standards and Specifications and applicable laws and regulations. The Plan Reviewer must be certified as an ESC (and SWM when applicable) Plan Reviewer by DEQ or provisionally certified. This role may be conducted by a third party firm preparing the plans as directed by Dominion Energy.

Operator – shall have direct oversight of the general construction practices utilized by Dominion Energy. The operator shall have fiscal responsibility and signatory authority for Dominion Energy on all VSMP and SWPPP certification statements, unless otherwise delegated in writing.

(Construction) Site Manager/SWPPP Contact - shall have direct oversight of all personnel that prepare, construct, maintain and rehabilitate a given project. The Site Manager/SWPPP Contact also has control over site-specific construction plans, including the ability to make modifications to those plans. This person shall also ensure compliance with ESC, SWM, SWPPP, and VSMP requirements as well as compliance with these Standards and Specifications. The Site Manager/SWPPP Contact is authorized to direct workers at a site to carry out activities in accordance with these and other permit conditions and must be minimally certified as a Responsible Land Disturber (RLD) by DEQ. This role may be conducted by a third party firm as directed by Dominion Energy.

Dominion Energy Construction Coordinator/Contractor – shall have direct oversight of all personnel that prepare, construct, maintain and rehabilitate a given project. The Dominion Energy Construction Coordinator/Contractor shall ensure that all ESC and SWM measures as indicated on the project plans are implemented appropriately prior to the start of land-disturbing activities. The Dominion Energy Construction Coordinator/Contractor shall have the authority to modify measures within the plans to accommodate construction and site-specific needs, so long as they meet the minimum requirements of the regulations (9VAC25-840, *et seq*. and 9VAC25-880, *et seq*.). The Dominion Energy Construction Coordinator/Contractor, or their qualified designee, shall also be responsible for the maintenance of the onsite SWPPP notebook documenting land disturbance progress and any implemented changes in the ESC and SWM plans during construction. This role is minimally certified as an RLD and in many cases is also a certified ESC and/or SWM Inspector. This role may be conducted by a third party firm.

ESC and SWM Compliance Inspectors – shall be responsible for the inspection and compliance of ESC, SWM, VSMP, and SWPPP practices as well as those practices outlined in these Standards and Specifications. These responsibilities will typically be shared with the Dominion Energy Construction Coordinator/Contractor. The Inspector must be a DEQ-certified ESC inspector and a qualified individual or DEQ-certified SWM inspector, where applicable. This role may be conducted by a third party firm as directed by Dominion Energy. Dominion Energy must ensure that inspection staff is suitable for the size and scope of the project.

ESC and SWM Standards and Specifications Inspectors – shall be responsible for periodic oversight inspection of projects carried out under these Standards and Specifications for ESC and/or SWM project compliance. These inspections will be consistent with requirements of VESCP and VSMP authorities required by 9 VAC 25-840-60 and § 62.1-44.15:37.A. The Inspector must be a DEQ-certified ESC inspector and a DEQ-certified SWM inspector, where applicable. This role may be conducted by a third party firm as directed by Dominion Energy. Dominion Energy must ensure that inspection staff is suitable for the size and scope of the project.

Site-Work Contractor –shall be responsible for complying with the intent of this document to provide ESC and SWM control both within and outside the project area. The Site-Work Contractor shall follow a policy of keeping land-disturbing activities to a minimum consistent with good construction practices and long-term environmental considerations. The Site-Work Contractor shall be responsible for the stabilization of all disturbed areas during construction activities until final rehabilitation is complete. This role is typically conducted by a third party firm.

Permitter – shall be a Dominion Energy employee assigned to oversee project permitting approval including the ESC Plan and the SWM Plan. The Permitter typically coordinates with DEQ.

3.0 TECHNICAL CRITERIA

3.1 Erosion and Sediment Control

Dominion Energy employs the following erosion and sedimentation controls during soil-disturbing activities associated with the construction of electric transmission lines. At a minimum, erosion and sediment control measures must address the requirements as defined in 9VAC25-880-70 Part II A.2.c(1-9), summarized as follows.

1) Control stormwater volume and velocity within the site;
2) Control stormwater discharges at outlets;
3) Minimize the amount of soil exposed during construction;
4) Minimize disturbance of steep slopes;
5) Minimize sediment discharges;
6) Provide and maintain natural buffers around surface waters where feasible;
7) Minimize soil compaction and preserve topsoil;
8) Stabilization of disturbed areas; and
9) Utilize outlet structures that withdraw water from the surface.

These minimum requirements shall be met through the implementation of the Minimum Standards of the Virginia Erosion and Sediment Control Regulations (9VAC25-840-40) in the ESC Plan, by the design, construction, and maintenance of Erosion and Sediment Controls in accordance with the VESCH, and the application of environmental site design principles.

3.1.1 Minimum Standards

The intent of these ESC specifications is to ensure that the Minimum Standards set forth in the Virginia Erosion and Sedimentation Control Regulations are implemented during the construction of Dominion Energy electric transmission projects. The Minimum Standards set forth in 9 VAC 25-840-40 and the control practices laid out in the VESCH shall be applied to the planning, design, construction and maintenance of ESC and SWM plans (when applicable). See Appendix F for a list of the Minimum Standards.

3.1.2 Erosion and Sediment Control Practices

The following are the more commonly used practices applied to electric transmission construction (from *Virginia Uniform Coding System for Erosion and Sedimentation Control Practices*). The use of the VESCH, along with accompanying technical documents, guidance and practices is strongly preferred. The VESCH and related technical documents and guidance specifications are incorporated by reference into these Standards and Specifications. Details for those practices marked with an asterisk (*) are included in Appendix B. For full details, refer to the 1992 VESCH. Deviations from the VESCH control measures, best management practices (BMPs), and control specifications may be included in these Standards and Specifications, but their use may be further reviewed and approved by the applicable DEQ Regional office on a project-specific basis.

For all deviations from the VESCH and proprietary control measures, all applicable practical information including definition, purpose, conditions where practice applies, planning considerations, design criteria, construction specifications, design tables and plates, and maintenance and inspections shall be included on the ESC plans. Deviations from the VESCH and proprietary control measures shall be installed per the manufacturer’s instructions and with the intent of the VESCH specifications. Should non-VESCH control measures or deviations from the

VESCH fail to effectively control soil erosion, sediment deposition, and non-agricultural runoff, then VESCH or other appropriate non-VESCH control measures shall be utilized.

The following are specific erosion and sedimentation control measures to be used where regulated land-disturbing activities occur:

Practice	**Title**	**Key**
3.01*	Safety Fence	SAF
3.02*	Temporary Stone Construction Entrance	CE
3.03	Construction Road Stabilization	CRS
3.04*	Straw Bale Barrier	STB
3.05*	Silt Fence	SF
3.09*	Temporary Diversion Dike	DD
3.10*	Temporary Fill Diversion	FD
3.11*	Temporary ROW Diversion/Water Bars	RWD
3.12*	Diversion	DV
3.15	Temporary Slope Drain	TSD
3.17	Stormwater Conveyance Channel	SCC
3.18*	Outlet Protection	OP
3.19*	Riprap	RR
3.20*	Rock Check Dams	CD
3.21	Level Spreader	LS
3.22	Vegetative Streambank Stabilization	VSS
3.23	Structural Streambank Stabilization	SSS
3.24*	Temporary Vehicular Stream Crossing	SC
3.25*	Utility Stream Crossing	USC
3.26*	Dewatering Structure	DS
3.29	Surface Roughening	SR
3.30	Topsoiling	TO
3.31	Temporary Seeding	TS

3.32	Permanent Seeding	PS
3.34	Bermudagrass & Zoysiagrass Est.	BE/ZE
3.35	Mulching	MU
3.36*	Soil Stabilization Blankets & Matting	B/M
3.37	Trees, Shrubs, Vines & Ground Cover	VEG
3.38	Tree Preservation & Protection	TP

The following practices and measures are identified as baseline measures for minimizing erosion and sedimentation and are not found in the VESCH. The non-VESCH practices and measures include:

Mat Stabilization	MS

Dominion Energy utilizes construction mats to provide access through areas such as wetlands and waterbodies, some agricultural fields, steep slopes, and other areas. This practice reduces soil compaction and provides a stable travel lane for contractors along the project right-of-way (ROW), thus minimizing land disturbance.

The use of construction mats may generally not constitute soil disturbance or a change in hydrology. Therefore, the installation of mat accesses and work pads where underlying soil is not disturbed is not considered a regulated land-disturbing activity and these areas are generally not included in land disturbance area calculations. To the extent that land disturbance occurs in uplands through use of mat stabilization, the restoration process outlined in Section 3.2.2 will be utilized. Any required restoration in wetland areas will be completed in accordance with pertinent (Clean Water Act) Section 404 permits for the site (e.g. U.S. Army Corps of Engineers permit).

Geotextile Bag/Dewatering Bag	GB

Dominion Energy may utilize geotextile bags for dewatering and velocity reduction on electric transmission line construction projects in lieu of straw bale dewatering practices illustrated in DS (Std. 3.26 Dewatering Structure). The purpose, definition, conditions of application and planning considerations are identical. Design criteria and specifications vary by dewatering bag

manufacturer. A variety of geotextile dewatering bag products are available on the market. When incorporated into a plan, all manufacturers' guidance on the use, design, sizing, maintenance and application of the geotextile dewatering bag shall be followed.

The following items are specific to the practices within this document and are not found in the VESCH manual. Details for these items are located in Appendix B following those items listed above.

Concrete Wash Pit	CWP

Concrete wash pits are utilized by the contractor to prevent the discharge of water and waste concrete from small on-site concrete placement operations.

Straw Wattles	SW
Silt Sock	SS

Dominion Energy has utilized straw wattles or silt sock in place of silt fence as a sediment control measure. When replacing silt fence with straw wattles or silt sock, the following three conditions must be met:

1.) The VSMP SWPPP must be modified to accommodate the detail, specifications and wattle practice locations. Straw wattles and silt sock should be used under the same conditions as silt fence (see Std. 3.05 Silt Fence). In summary, the size of the drainage area should be no more than one quarter acre per 100 feet of length; the maximum slope length behind the barrier is 100 feet; and the maximum gradient behind the barrier is 50 percent (2:1). Additionally, maintenance criteria should also match those outlined for Silt Fence (e.g. sediment deposits should be removed when they reach approximately one-half the height of the barrier).

2.) The wattle's performance must be specifically documented on Dominion Energy's Weekly Inspection Reports.

3.) Usage must comply with all of the wattle manufacturer's specifications and the manufacturer's specifications must be included with the SWPPP to ensure proper use, installation and maintenance.

A manufacturer's detail of an approved straw wattle has been provided in Appendix B.

The Site-Work Contractor shall take every reasonable precaution, including the use of temporary and permanent measures, throughout the project to minimize the effects of erosion and sedimentation onsite and to adjacent streams. All measures for the purposes of containing sediment are to be installed prior to upslope land-disturbing activities occurring.

3.1.3 Accesses and Construction Entrances in General

Accesses and construction entrances are necessary for the construction, maintenance and improvement of electric transmission projects. Accesses will sometimes be temporary in nature to support construction and sometimes will be permanent to support maintenance activities. Accesses and construction entrances should be minimized to avoid soil disturbance, consistent with the project objectives and requirements. Accesses shall generally be constructed in accordance with VESCH STD & SPEC 3.03 and will consist of the application of aggregate (VDOT #1 or similar large coarse aggregate) as required immediately after final grading. Other aggregate, including VDOT #3 or VDOT #57 stone, may be used if approved by VDOT on a case-by-case basis. VDOT #3 and VDOT #21A average 1 1/2"-2 1/4" and 1 - 1/2" to Fine Powder, respectively. VDOT #1 Coarse Aggregate standard is 2-3". When required, controls to be utilized with the placement of construction accesses may include, but not be limited to, terraces, cutouts, diversions, mulching, the installation of non-erosion outlets, straw bales, cross drains and water bars, or surface stabilization. In general, access placement and construction will adhere to the following guidelines although project specific approaches may be utilized as dictated by site conditions:

a) Accesses will be built along the shortest practical route where easement rights exist and taking into account topographic and jurisdictional features and will be the minimum width necessary.
b) Access types should be incorporated into the ESC Plans and include, but are not

limited to, existing private stoned roads, preferred temporary accesses, alternate temporary accesses, and permanent access roads.

c) Wherever accesses intersect paved public roads, construction entrance pads or timber mat pads shall be installed to prevent mud tracking by construction vehicles. The subgrade within the access or entrance alignment may be excavated prior to backfilling.

d) Whenever feasible the access or entrance pad shall consist of a porous, open-graded gravel surface (VDOT #1 stone or similar).

e) Accesses and entrances may be top-dressed with VDOT #57 stone when approved by VDOT on a case-by-case basis.

f) The access and entrance edges shall be graded to the lowest possible angle and surface stabilization shall be applied within seven (7) days after final grade is reached.

g) Access and entrance surface stabilization will depend upon field conditions and determined by the Dominion Energy Construction Coordinator/Contractor.

h) In limited cases, an alternative compacted or paved surface may be necessary. If a permanent, compacted surface stabilization is selected, resulting in increased impervious surface, the area shall be included in an analysis of water quality compliance for the project area as outlined in 9VAC25-870-63 and Section 3.4 of this document. Furthermore, the outfall shall be evaluated for compliance with the stormwater water quantity criteria under 9VAC25-870-66 and as outlined in Section 3.4 of this document.

i) Unless access surface stabilization has been applied to preclude the need for such devices (i.e. matting or permeable construction road stabilization), accesses exceeding a 5% grade within 200-foot lengths shall have adequate water bars, terraces or diversions spaced at a minimum in accordance with Table 3.11-A of the VESCH or at more frequent intervals.

j) Pipe culverts or a bridge will be installed only in areas where the access is crossing a defined drainage way. At low areas the access shall remain as close to grade as possible and shall be stabilized in accordance with these Standards and Specifications to trap or minimize erosion. A pipe culvert installed in a defined drainage way shall be installed as if the access were crossing a flowing watercourse. All Federal, State,

and local regulations and permits will be met.

k) When a flowing watercourse must be crossed, temporary vehicular stream crossings shall be established in accordance with VESCH STD & SPEC 3.24. When culverts are used as a temporary crossing, the culvert must be sized to carry a 10-year frequency storm without appreciably altering the stream flow characteristics, using the specific watershed of the stream being crossed as the source of hydrologic and hydraulic modeling input parameters. If the crossing will be in place for less than 14 days, it shall be sized to handle a 2-year frequency storm and Table 3.24-A may be used to size the culvert. The appropriate culvert sizing should be included on the ESC plans.

All proposed temporary or permanent accesses and entrances shall be designated on site plans and evaluated by the designated Plan Reviewer for consistency with the ESC and SWM requirements of these Standards and Specifications. Plan reviewers will evaluate whether the project is consistent with GM 15-2003, specifically with regard to whether the project will significantly alter the pre-development runoff characteristics of the land surface after the completion of construction and final stabilization. If significant changes to runoff characteristics are anticipated, the project must either follow guidelines for restoration of accesses to a permeable state to eliminate the significant changes to pre-development runoff characteristics, or must provide any necessary permanent stormwater controls as outlined in the stormwater plan including purchase of approved mitigation credits (Section 3.4). With regard to accesses, the GM 15-2003 SWM Plan Waiver is only applicable to temporary access roads and will not apply to permanent access roads.

3.1.4 Specifications for Permanent Accesses

In general, permanent access will adhere to the following guidelines although project specific approaches may be utilized as dictated by site conditions. Access is typically planned/designed and constructed to be approximately 14’ wide. For 115 kV and 230 kV construction projects the following specifications apply, the location of the access layout must be identified in and follow the approved SWPPP. On flat ground, generally defined as slopes less than 3%, the topsoil is scraped off with a blade, with excess soil pushed to either side of the roadbed. On side slopes or areas with significant relief, the roadbed is cut six (6) inches with fill placement on the down slope side of the

roadbed. All cuts and fills shall have stable slopes. Fill areas located near streams or in areas of erosive soils shall be compacted prior to reaching final grade and final stabilization. Steeper slopes of 10% or more shall not exceed an 18 inch cut. All fills outside of the roadbed shall be permanently seeded and strawed within 48 hours of reaching final grade. A geotextile fabric should be laid in the cut roadbed after all loose rock and debris is removed. A base layer of VDOT #3 (or similar) topped with 2-3 inches of VDOT #57's (or similar) and then compacted with a static or tamping foot roller should be used. In sandy soils VDOT 21A should be used in place of #3's and compacted in 3 inch lifts and topped with 2-3 inches of VDOT #57's. Also, railroad ballast is acceptable for the entire cut depth if available. On level grades the road shall be crowned at a 1-2% slope. In steep grades the road should be in-sloped to the cut side 3-5% with a stone lined under drain and downstream runoff devices as specified in the project SWPPP.

For 500 kV construction projects, cut depth for the roadbed should be 8-10 inches and on steeper slopes of 10% or more, the cut depth shall not exceed 26 inches. All other above-mentioned specifications would still apply.

3.1.5 Specifications for Temporary Accesses

Temporary access roads generally will not require any cut prior to application of stone. Depending upon soil type and various site conditions a maximum 4 inch cut may be required prior to stone installation. In some situations, deeper cuts may be needed. Filter fabrics are not typically used in the construction of temporary access roads. The stone application will be VDOT #3, railroad ballast, or similar coarse aggregate and will not be rolled or compacted. See Section 3.1.6 and Appendix C for details on final rehabilitation of temporary accesses.

3.1.6 Restoration of accesses and construction entrances

Where Dominion Energy rehabilitates and restores construction accesses and construction entrances, the following general sequence of activities will be followed (Details in Appendix C). Project specific approaches may be utilized as dictated by site conditions:

a) All fine aggregate, crusher run materials and other fines which may clog the surface of the porous ballast/base stone (VDOT #1 or similar) shall be removed from the

temporary access areas. Geotechnical fabric, if used, shall be removed as detailed in Appendix C.

b) Any defined ditches or topographic alterations which significantly alter pre-development runoff characteristics shall be graded and topsoiled to match pre-development drainage patterns and avoid concentration of runoff.
c) Porous ballast stone will be removed from temporary accesses to the maximum extent practicable. See Appendix C for more details.
d) Permanent accesses installed by Dominion Energy will remain in place subject to 9VAC25-870-63, 9VAC25-870-76, 9VAC25-870-66 and Section 3.4 of these Standards.
e) Previously existing private stoned roads will be left in place and documented in the ESC Plans.
f) Top-soiled rehabilitated accesses and temporary construction entrances must be stabilized with a firm stand of erosion resistant grasses.
g) Rehabilitated accesses and temporary construction entrances that are to be counted as forested/open space shall be restored to a hydrologically functional and naturally vegetated state and shall be bush hogged no more than four (4) times per year.

3.1.7 Temporary Matting

Dominion Energy frequently utilizes construction mats for access through sensitive areas, jurisdictional wetlands and waters, agricultural fields and other areas as determined by the Dominion Energy Construction Coordinator/Contractor. This practice reduces soil compaction and provides a travel way for Site-Work Contractors along the utility ROW, thus minimizing land disturbance. When utilizing construction mats for crossing waterways, Dominion Energy will ensure the construction mats are anchored where the possibility exists that the waterway elevation may dramatically change; the anchoring should reduce or eliminate the potential for construction mats to wash downstream. Where anchoring does not prevent construction mats from washing downstream, the construction mats will be retrieved as soon as practicable and any damages resulting from the wayward construction mats will be repaired. Temporary stream crossings will be conducted in general accordance with the VESCH STD & SPEC 3.24 for Temporary Vehicular Stream Crossings.

The use of construction mats does not constitute soil disturbance. The installation of mat access roads and tower work pads which does not disturb the underlying soil is not a regulated land-disturbing activity and these areas are not included in land disturbance area calculations.

3.1.8 Construction Associated with Structure Foundations and Structure Erection

Before work begins at any site, the Site-Work Contractor and the Dominion Energy Construction Coordinator/Contractor will evaluate the site with respect to land disturbance and erosion potential. Sensitive areas to be protected will be identified on the plan and profile drawings and/or the ESC plans.

The Site-Work Contractor shall be responsible for either temporary or permanent stabilization of the work site, in accordance with the work plan, before moving to the next location. Areas disturbed during foundation construction and structural erection activities shall be restored to the original grade when applicable and protected by installing ESC measures specified by the Dominion Energy Construction Coordinator/Contractor. All temporary ESCs shall remain in place until permanent stabilization is achieved.

3.1.9 Construction Adjacent to Streams for Overhead Electric Transmission Lines

Trees and brush located within 100 feet of a stream with flowing water present shall be cleared by hand. All material three (3) inches in diameter or greater shall be sawed or cut and removed from the buffer. Material less than three (3) inches in diameter shall be left undisturbed unless it is a species that could interfere with the operation of the lines. Care shall be taken to prevent the disturbance of soil within the 100-foot buffer zone around streams and ditches. Creeks and streams shall be crossed at right angles in one location on the ROW using culverts, temporary bridges, or large aggregate stone. All work related to stream crossings shall be in accordance with VESCH STD & SPEC 3.24. The Site-Work Contractor, responsible for final stabilization, shall remove all materials from temporary stream crossings at the completion of the project.

When construction activities in streams require a U.S. Army Corps of Engineers permit, State

environmental permit approval, or approval from a local Wetlands Board, Dominion Energy will coordinate or obtain such permits, in accordance with Minimum Standard 14. All applicable permit conditions for in-stream work will supersede the specifications herein and be strictly adhered to.

3.1.10 Forestry and Vegetation Management Activities for Overhead Transmission

Electric transmission line ROWs are required to be cleared to a specific width as determined by the line voltage. Tree removal is performed by machines with hydraulic cutters or by hand-cutting with power saws. Depending on the project, forestry activities may include limited trimming in order to maintain the existing ROW width, select danger tree removal, or clearing of new ROW. In all cases, brush, trees, and old stumps are cut at ground level and may be ground or chipped. The ROW is not grubbed, thus leaving the root mass intact and the soil undisturbed. The Dominion Energy Construction Coordinator/Contractor may elect to install additional controls if field conditions warrant.

Electric transmission line corridors are perpetually maintained in a natural vegetated state. In accordance with the Virginia Runoff Reduction Method (VRRM) Guide v.3.0 or the most current version, utility ROW shall be bush hogged no more than four (4) times per year. This will allow the ROW to maintain the hydrologic functionality of a forest/open space unless the underlying property owner maintains the property in a different condition. In the case where the property owner maintains the underlying property in a condition other than the natural vegetated state, that condition shall be recognized when post stormwater analysis is warranted or required. Control of invasive species, replanting and revegetating, and forest management practices are permissible for the operation and management of these areas.

A detailed Vegetation Maintenance Plan for Dominion Energy Electric Transmission is located in Appendix A.

3.1.11 Construction Associated with Underground Electric Transmission Lines

The primary means to reduce impacts associated with underground construction is to minimize construction time. During construction, all spoils shall be placed on the uphill side of the trench or

hauled away to a spoil storage site. The spoils site shall be controlled with either silt fence or straw bale barriers. Should it be necessary to place spoils on the downhill side of the trench, the Construction Coordinator/Contractor may require the installation of silt fence or straw bales. Where construction occurs in the vicinity of streams or storm drains, the Construction Coordinator/Contractor may require that these drainage areas be protected with silt fence or straw bales. Whenever stormwater runoff is pumped out of the trench during construction, this water shall be filtered through straw bales or filter fabric or another filtering device before it enters any drainage system or drain. When installing the underground pipe across a stream, the contractor shall follow the VESCH STD & SPEC 3.25. All stream protection measures covered in the VESCH shall be followed for an underground stream crossing.

3.1.12 Erosion Control Device Maintenance

It is the responsibility of the Site-Work Contractor to maintain all erosion control devices. Upon inspection, if an erosion control device is damaged or if the capacity is approaching its limit, proper steps of repair or maintenance shall be taken. The Construction Coordinator/Contractor shall direct the Site-Work Contractor to take the necessary steps should conditions warrant repair or maintenance and specify a timeframe for the corrective action to be completed by. All maintenance of ESC measures shall be in accordance with the latest edition of the VESCH.

3.2 Site Rehabilitation

Site rehabilitation on a transmission project is a continuous operation designed to stabilize disturbed areas, establish permanent vegetation and return the ROW to a hydrologically functional state. The primary areas of potential compaction requiring restoration or hydrologic functionality associated with electric transmission line projects are our access road areas and areas around tower sites. Restoration of temporary access road areas is addressed in Section 3.1.6 and Appendix C. Areas around tower sites are restored to a hydrologically functional state through returning the area to pre-existing contours, use of a subsoiler or similar equipment if needed and through the rehabilitation process described below (e.g., discing, seeding).

Each contractor performing work on the project is responsible for temporary stabilization of all soil disturbing activities performed. The temporary measures, including straw bales, silt fence,

mulching, and stone shall be applied to land disturbing activities. Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

The rehabilitation of the ROW shall include the stabilizing and permanent seeding of transmission construction accesses, tower sites, and all other areas disturbed as a result of the various construction activities. All temporary ESC measures shall be disposed of within 30 days after final stabilization is achieved. Stabilization will be considered final when the vegetative cover is uniform and mature enough to survive and will inhibit erosion.

The contractor responsible for permanent rehabilitation shall, at a minimum, establish permanent vegetative cover on all denuded areas not otherwise permanently stabilized following the specific measures below in conjunction with applicable VESCH Standard and Specification.

3.2.1 Soil Preparation

a) All bare soil areas resulting from construction, including construction access and tower sites, shall be worked by discing to a depth of three (3) inches. Discing shall be perpendicular to the line of slope when possible. Water bars or other drainage facilities, if destroyed, must be repaired. Severely compacted areas may require the use of a subsoiler or similar equipment prior to discing the area.

b) As described in Virginia Erosion and Sediment Control Technical Bulletin No. 4, soil tests should be conducted on every site. In lieu of a soil test, apply 500 pounds of 10-20-10 fertilizer per acre, and lime at a minimum rate of two (2) tons per acre to insure successful germination and growth. No more than one (1) pound of water soluble nitrogen per 1,000 square feet is to be applied on construction sites in a 30 day period. The application shall be made prior to discing to work the fertilizer and lime into the soil. The fertilizer must be applied uniformly over the bare soil and shall not be applied more than four (4) weeks before seeding.

c) Cross drains may be installed on all accesses on and off the ROW as directed by the Construction Coordinator/Contractor, Dominion Energy Transmission Construction or Forestry Representative and are installed as a part of the cleanup activity.

Cross drains are to be located as follows:

Percent Slope	Distance Between Cross Drain (Feet)
2	240
5	140
10	80
15	60
20	45
25	40
30	35
40	30

Cross drains shall be constructed to carry the amount of excess surface water anticipated at each location. Cross drains are not to be constructed at right angles to the direction of slope, but are angled to carry the excess water with the direction of the slope.

3.2.2 Site Stabilization and Restoration

In order to stabilize disturbed areas, establish permanent vegetation and restore areas to a hydrologically functional state, the following seeding program will be implemented:

a) Seeding shall be done with a cyclone-type or no till seeder. In some situations hydroseeding may be utilized.

b) After fertilizing and discing, or if no till equipment is used, the applicable grass mixtures shall be uniformly applied at the rates specified in VESCH STD & SPEC 3.32.

c) Seeding is not recommended in July or August or from November to spring thaw when weather conditions prevent proper operation. Weather conditions (soil moisture) may permit alterations in this requirement. A combination of warm/cool season grasses may be applied in phases with a follow-up over-seeding of the appropriate seasonal grass for that time of year application.

d) When grading is complete, seeding and mulching shall be performed.

e) Permanent or temporary soil stabilization will be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site. Soil stabilization will also be applied within seven (7) days to denuded areas which may not be at final grade but will remain undisturbed for longer than 14 days.

Use of Alternative Native Species for soil stabilization in place of invasive non-native species included in the VESCH will be conducted consistent with the *DCR Native vs. Invasive Plant Species for Erosion and Sediment Control Frequently Asked Questions*" publication.

3.3 Maintenance

ROWs are maintained in accordance with Appendix A.

3.4 Stormwater Management

Under 9VAC25-870, regulated land-disturbing activities are required to meet the stormwater technical criteria for water quality and water quantity metrics as outlined in Part IIB of the Virginia Stormwater Management regulations. Due to the nature of Dominion Energy's construction and ROW maintenance practices as defined within this document, the majority of electric transmission line construction projects may not result in a change in land cover or significant alteration of the landform. The water quality and quantity criterion are largely directed at avoiding, minimizing and

mitigating impacts due to changes in hydrology and stormwater pollutant loads associated with changes in land cover.

The intent of the Virginia Stormwater Management regulations is to improve water quality through runoff reduction and establish water quantity requirements. The baseline level for the stormwater technical criteria is a forested/open space condition. The water quantity technical criteria (a.k.a. "Energy Balance" criteria) generally necessitate reductions in discharge rates when the post-developed volume and/or rate of runoff exceed this forested/open space baseline.

Each project will be reviewed to evaluate consistency with GM 15-2003. The guidance memorandum states that DEQ may approve a GM 15-2003 SWM Plan Waiver if the project will not result in significant changes to pre-development runoff characteristics. Based on the vegetative management and construction practices outlined in this document and in the VRRM guidance, clearing and maintenance of a ROW typically does not alter the existing hydrologic parameters of the land surface. The forestry and vegetative management practices employed by Dominion Energy within the ROW comply with the VRRM recommendations for open space and can be considered equivalent to forest cover. These management practices include the ROW remaining as a permeable surface and mechanized cutting of the ROW (e.g., bush hogging) occurring no more than four (4) times per year.

GM 15-2003 (located in Appendix F) specifically addresses linear development projects in stating, "…the construction of aboveground or underground utilities may not result in changes to the pre-development runoff characteristics of the land surface after the completion of construction and final stabilization." The guidance memorandum goes on further to state that, "If the project will not result in significant changes to the pre-development runoff characteristics after the completion of construction and final stabilization…," the requirement for a SWM plan may be waived.

Additionally, the guidance memorandum stipulates a number of conditions which must be satisfied for linear utility projects to without obtaining coverage under the CGP. Specifically, the following conditions must be satisfied:

- The project does not significantly alter the pre-development runoff characteristics of the land surface after the completion of construction and final stabilization.
- The project is managed so that less than one (1) acre of land disturbance occurs on a daily basis.
- The disturbed land where work has been completed is adequately stabilized on a daily basis.
- The environment is protected from erosion and sedimentation damage associated with the land-disturbing activity.
- The owner and/or construction activity operator designs, installs, implements and maintains pollution prevention measures to:
    - *Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters;*
    - *Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on-site to precipitation and to stormwater;*
    - *Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures;*
    - *Prohibit the discharge of wastewater from the washout of concrete;*
    - *Prohibit the discharge of wastewater from the washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; and*
    - *Prohibit the discharge of fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.*
- Dominion Energy must provide reasonable assurance to DEQ that all of the above conditions will be satisfied. This may be accomplished by incorporating these conditions into an ESC Plan developed for the project.

Dominion Energy intends to follow the provisions outlined in GM 15-2003 when feasible. The review for consistency with GM 15-2003 will be conducted by DEQ-certified Plan Reviewers prior to initiating land-disturbing activities. The evaluation will be documented in a Formal Letter of

Evaluation of consistency with GM 15-2003 as detailed below. Dominion Energy may be required by DEQ to produce documentation of water quantity or water quality evaluation to demonstrate the applicability of GM 15-2003. The evaluation may include site specific water quantity or quality calculations, review of the ESC Plan or SWPPP (e.g., rebuild projects in existing ROW), or evaluation of calculations developed for a comparable, representative project. In situations where the project cannot meet the requirements of GM 15-2003 (generally where the addition of impervious surfaces may occur and cause significant changes in pre-development runoff characteristics), the stormwater-related technical criteria set forth in Section 3.4 in this document must be implemented and a SWM plan must be prepared, reviewed, approved and implemented.

In 2015, Dominion Energy prepared full stormwater analyses for three of its typical new ROW transmission line projects. The projects were the Surry-Skiffes 500 kV Phase 2, the DuPont Relocation Project, and the Pacific 230 kV Project. Each project was individually reviewed by DEQ via a project summary letter from Dominion Energy dated March 23, 2016.

As approved in an August 8, 2016 letter from DEQ (see Appendix H), and based upon the three case studies described above, if a project results in non-significant changes to the topography, the access roads are temporary, and maintains preexisting land cover (or in the worst case scenario, is converted from forest to open space and not a more intensive use) then the project will not require full stormwater analysis and meets the requirements for a GM 15-2003 SWM Plan Waiver (see Appendix H for Case Study details). The Formal Letter of Evaluation will be submitted along with registration statements for applicable projects requesting a GM 15-2003 SWM Plan Waiver. Approval of the request will be documented in a SWM Plan Waiver Approval Letter from DEQ. The Formal Letter of Evaluation will include the following:

- Project Description: The letter will include a project description addressing the type of project (e.g., existing ROW, new ROW), and proposed access (e.g., temporary access, permanent access).
- Methodology for evaluating non-significance: The letter will reference the case studies if the case study projects are representative of the proposed project. If other methods are used (e.g., calculations, review of the ESC Plan or SWPPP), the letter will identify those methods.

- Changes in topography: The evaluation will consider any changes in topography of the finished project relative to the pre-construction condition.
- Site-specific restoration: If the proposed project will be utilizing restoration methods different from those included in these approved Standards and Specifications, the evaluation will address the site-specific restoration methods.

Upon request of DEQ, Dominion Energy shall provide any file documentation. Dominion Energy acknowledges DEQ is the final authority in evaluating any project is consistent with the requirements for GM No. 15-2003 Stormwater Management Plan Waiver.

3.4.1 Water Quality (9VAC25-870-63)

a) New Development - Part IIB specifies nutrient criteria for new development.

Projects described as New Development would generally include those that require clearing of new ROW or the expansion of existing ROW. These types of projects, when constructed in accordance with the specifications outlined in these Standards and Specifications, do not typically result in any increase in impervious area.

The Land Cover Guidance in the VRRM defines utility corridors that are restored to a hydrologically functional state and left in their natural vegetated state, including areas that will be bush hogged no more than four (4) times per year, as forested/open space and not as managed turf. These areas are deemed to be hydrologically functional for the purposes of stormwater.

New Development projects may also include the installation of new towers and foundations. Where foundations are direct-buried or pipe-pile type foundations are used, the change in impervious area or hydrologic function of the land is inconsequential and projects would generally not exceed 0.41 lb/ac/yr of phosphorous. In some cases, concrete cap foundations are required to be placed above the ground surface. In these instances, the total impervious area associated with these foundations may be evaluated within the project area to ensure compliance with the phosphorous

threshold for New Development.

In the event that significant changes to pre-development runoff characteristics are proposed, Dominion Energy must develop and implement a SWM plan consistent with the applicable requirements of 9VAC25-870 and 9VAC25-880. The VRRM Spreadsheet is a tool which regulated entities may use to document general water quality planning and consistency with the technical requirements of 9VAC25-870.

b) Development on Prior Developed Lands (Redevelopment) – Redevelopment projects would generally consist of the demolition and rebuild of an existing line. As outlined in Section 4.0, these types of projects are generally exempt from the CGP as they can be considered "routine maintenance that is performed to maintain the original line and grade, hydraulic capacity or original construction of the project."

If any portions of the projects defined under parts (a) and (b) above require the addition of permanent impervious areas or cannot be constructed and maintained in accordance with these Standards and Specifications, the technical criteria for water quality as outlined in 9VAC25-870-63 shall apply. A specific evaluation of the entire project area shall be conducted. Where total phosphorous loadings from the project exceed allowable thresholds, appropriate BMPs as described in 9VAC25-870-65 (Virginia BMP Clearing House) or offsite compliance options will be employed as allowed by appropriate law and regulation. Alternative BMPs may be utilized on a case-by-case basis and must be approved by the VSMP authority.

3.4.2 Water Quantity (9VAC25-870-66)

As denoted in the VSMP Regulations, the technical criteria for water quantity are designed to ensure the protection of state waters from the potential harm of unmanaged stormwater runoff. This is generally achieved through the reduction of 10-year post-development peak flow rates to below pre-development levels for flood protection and the use of various channel protection criteria depending on the nature of downstream receiving conveyance systems. As noted above, due to the nature of Dominion Energy's electric transmission line projects, the majority of projects do not result in a change in land use or significant alteration of the landform, and therefore do not affect

water quantity.

Oftentimes, an electric transmission line project results in a strict preservation of pre-construction conditions with no changes at all. This includes, but is not limited to, an overhead electric transmission line constructed through an existing agricultural field or across an existing roadway or parking lot.

The electric transmission line construction activity most often presumed to affect water quantity is the clearing of new ROW; however, when clearing and maintenance is conducted in accordance with these Standards and Specifications, the long-term post-development flow rates for a newly cleared ROW are not expected to exceed those for forested conditions. If previously forested, the maintenance of a new electric transmission line ROW is not consistent with managed turf or pasture conditions; rather, it is left in its natural vegetated state and is bush hogged no more than four (4) times a year. Additional maintenance is typically limited to danger tree clearing (see Section 3.1.7). Brush, inclusive of young trees, is allowed to grow to a certain height and constitutes a large portion of an existing ROW.

As noted previously (Section 3.4), Dominion Energy will evaluate each project to ascertain whether the project qualifies for the GM 15-2003 SWM Plan Waiver and whether there is a significant change in pre-development runoff characteristics that might trigger the need for a SWM Plan and associated controls. Non-linear permanent facilities (such as substations) are expected to provide a SWM plan and associated controls if needed and pursue permit coverage if required. Dominion Energy expects to request a GM 15-2003 SWM Plan Waiver for projects that will not result in significant changes to predevelopment runoff characteristics.

Where pre-development runoff characteristics are changed significantly, triggering requirements for post-construction stormwater quality and quantity requirements, post-construction Best Management Practices (BMPs) may be required to comply with water quality and water quantity criteria and MS-19 of the Erosion and Sediment Control Regulations. In such instances, the regulated activity must comply with Part IIB or Part IIC (where applicable) of the stormwater regulations to assess compliance. This may include the “Energy Balance” method described in

9VAC25-870-66.B.3.a. In these instances, water quantity criteria for flood control and channel protection must be addressed and managed through the preparation of a SWM plan consistent with 9VAC25-870 and 9VAC25-880.

3.4.3 Stormwater Management BMPS

For projects requiring post-construction SWM BMPs, Dominion Energy must report the following each year to DEQ:

Number and types of SWM BMPs installed;
Date functional;
Address if available and geographic coordinates of each BMP;
Drainage area or watershed size served;
Receiving stream or hydrologic unit;
Total acres treated; and
Impervious acres treated.

4.0 EXEMPTIONS

Routine maintenance activites are defined in accordance with Va. Code § 62.1-44.15:34. Per the regulation, these activities include "Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders shall be deemed routine maintenance if performed in accordance with this subsection". A given project meeting this definition is exempt from those regulations outlined in 9VAC25-880, *et seq*., General Permit for Discharge of Stormwater for Construction Activities. The activities described below are considered to be maintenance, and are therefore exempt, when conducted in accordance with the terms and specifications of these Standards and Specifications. While these exempt activities do not require SWM plans or coverage under the construction general permit, appropriate ESC measures will be provided during construction in accordance with the Virginia Erosion and Sediment Control Law (Va. Code § 62.1-44.15:51, *et seq*., as amended) and the Virginia Erosion and Sediment Control Regulations (9VAC25-840, *et seq*.)

where applicable. When required, ESC plans will be prepared and approved in accordance with Section 3.1 of this document.

Exempt Maintenance Activities – Exempt Maintenance Activities include the repair, replacement, or rehabilitation of existing poles and structures. Deviations in the structure or pole configuration due to changes in materials, construction techniques, construction codes or safety standards as necessary to make the repair, replacement or rehabilitation are allowable under this exemption. Maintenance of existing access roads necessary for the continued safe operation of transmission facilities is also included under this exemption. Examples of these maintenance activities may include, but are not limited to:

- Vegetation management within the ROW including bush hogging and danger tree trimming and removal when done in accordance with the Vegetation Management Plan in Appendix A;
- Upgrades to, or the replacement of, equipment located/supported on structures or poles above the ground surface;
- Temporary, limited ground disturbance in the immediate area of existing structures to allow for visual inspection, testing, or maintenance for safety and operational purposes (e.g., grounding, bonding, grouting, steel-testing, etc.); this activity is typically limited to hand tools and consists of minimal disturbance. No topography changes are expected with this activity, however, areas with minimal disturbance will be restored appropriately.
- Reconductoring of existing lines (note that all construction access activities must comply with the practices outlined within these Standards and Specifications);
- In-kind replacement of poles or lattice towers provided that the foundations are the minimum size necessary and separate footings are provided for each leg where practicable.
- Restoration of existing access roads to original line and grade for the purposes of correcting erosion and rutting issues, or applying new surface stabilization to existing gravel or compacted earthen surfaces as described above. In cases where new surface stabilization will be applied to compacted earthen surfaces, a penetrometer evaluation should be conducted to document soil compaction characteristics prior to the application of new surface stabilization;

- Replacement or rehabilitation of existing culverts, provided that the replacement culvert serves the same drainage area, is appropriately-sized and appropriate outlet protection is provided.

Activities not explicitly exempt within this section which would otherwise require coverage under the CGP, and those activities which do not comply with these Standards and Specifications, must request a GM 15-2003 SWM Plan Waiver and/or a GM 15-2003 CGP Decline to Permit letter prior to the start of work. All other construction activities must comply with Section 3.0 of these Standards and Specifications for ESC and SWM.

5.0 EMERGENCY PROVISIONS

Dominion Energy reserves the right to conduct land-disturbing activities in response to a public emergency in accordance with emergency provisions, § 62.1-44.15:51, including grid reliability issues, to avoid imminent endangerment to human health or the environment in accordance with exemptions cited in Va. Code § 62.1-44.15:34.

6.0 INSPECTIONS AND ENFORCEMENT

6.1 Inspections

Dominion Energy or its designated representative will continue to be responsible for routine inspections for compliance with the CGP and these Standards and Specifications. Qualified personnel as outlined in Section 2.0 must conduct all inspections.

Periodic inspections for erosion and sediment control and installation of stormwater management measures are the responsibility of Dominion Energy, the AS&S holder. The periodic inspections shall be conducted by DEQ-Certfied ESC and SWM Inspectors. Dominion Energy is responsible for periodic oversight inspections of its AS&S program.

As DEQ is the VSMP Authority having oversight of Dominion Energy's program,, DEQ is responsible for performing random site inspections, as well as inspections in response to a complaint, to assure compliance with this article, the Erosion and Sediment Control Law, and

regulations adopted thereunder. See 9VAC25-840-60, 9VAC24-870-114, , and Va. Code §§ 62.1-44.15:37 and 62.1-44.15:58.

For SWM, in accordance with Va. Code §62.1-44.15:27.F, enforcement shall be administered by DEQ and the State Water Control Board where applicable. For ESC, in accordance with Va. Code §§ 62.1-44.15:54.E and 62.1-44.15:56.G, DEQ and the Board where applicable shall provide project oversight and enforcement as necessary and comprehensive program compliance review and evaluation. DEQ may take enforcement actions in accordance with these articles and related regulations.

6.1.1 Erosion and Sediment Control Inspections

For all projects, Dominion DEQ-Certified ESC Inspector or its designated DEQ-Certified ESC Inspector representative will be responsible for periodic ESC inspections in compliance with 9VAC25-840-60(B)(1). Specifically, Dominion or its designated representative will provide for an inspection during or immediately following initial installation of ESCs, at least once in every two-week period, within 48 hours following any runoff producing storm event, and at the completion of the project, or in accordance with an alternate inspection approved by the Board.

Additionally, Dominion understands that selection and satisfaction of a more proactive frequency of inspection in either General (every 5 days) or Enhanced Inspection Criteria (every 4 days) shall maintain Annual Standards and Specifications inspection compliance provided the individual conducting the inspections holds the more appropriate certificiation.

6.1.2 Stormwater Management Inspections

For all projects, Dominion DEQ-Certified SWM Inspector or its designated DEQ-Certified SWM Inspector representative will be responsible for periodic SWM inspections in compliance with § 62.1-44.15:37.. Specifically, Dominion or its designated representative shall provide for periodic inspections of the installation of stormwater management measures.

6.1.3 Construction General Permit Inspections

Dominion qualified personnel or its designated qualified representative shall be responsible for CGP inspections in compliance with 9VAC25-880-70 Part II (F) of the CGP. Specifically, inspections must be done at a frequency as indicated on the Construction General Permit Notice of Coverage Letter.

For projects discharging to exceptional waters identified in 9VAC25-260-30A3c, or to surface waters identified as impaired in the 2012 § 305(b)/303(d) Water Quality Assessment Integrated Report or for which a total maximum daily load (TMDL) wasteload allocation has been established and approved prior to the term of this general permit for (i) sediment or a sediment-related parameter (i.e., total suspended solids or turbidity) or (ii) nutrients (i.e., nitrogen or phosphorus), the following additional requirements will apply:

a. The exceptional water(s), impaired water(s), approved TMDL(s), and pollutant(s) of concern, when applicable, must be identified in the SWPPP;
b. Permanent or temporary soil stabilization must be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site;
c. Nutrients must be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and will not be applied during rainfall events; and
d. The applicable SWPPP inspection requirements specified in Part II F 2 must be amended as follows:

In accordance with 9VAC25-880-70 Part I.B.4 and 5 of the CGP:

(1) Inspections must be conducted at a frequency of (i) at least once every four (4) business days or (ii) at least once every five (5) business days and no later than 48 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 48 hours between business days, the inspection must be conducted on the next business day.

Furthermore, in accordance with 9VAC25-880-70 Part II.F.2.c of the CGP, control measures are inspected along the construction site 0.25 miles above and below each access point (i.e., where a roadway, undisturbed ROW, or other similar feature intersects the construction activity and access does not compromise temporary or permanent soil stabilization) and inspection locations are provided in the report required by Part II.F.

Finally, in accordance with 9VAC25-880-70 Part II.E.1 and Part II.G of the CGP, all control measures must be properly maintained in effective operating condition and the operator shall implement the corrective action(s) identified as a result of an inspection as soon as practicable but no later than seven (7) days after discovery or a longer period as approved by the VSMP authority.

Dominion understands that selection and satisfaction of more proactive frequency of inspection in either General (every 5 days) or Enhanced Inspection Criteria (every 4 days) shall maintain CGP and ESC/SWM Standards and Specifications inspection compliance.

6.1.4 Responsible Land Disturber

As a prerequisite to engaging in the land-disturbing activities shown on the approved ESC plan, the person responsible for carrying out the plan shall provide the name of an individual holding a certificate of competence to the VESCP authority, as provided by § 62.1-44.15:52, who will be in charge of and responsible for carrying out the land-disturbing activity.

6.1.5 Structural SWM Facility Inspections

If post-construction SWM is required, non-structural BMPs allowed by the permit will be the preferred option. A maintenance plan for both the non-structural and any additional structural BMPs must be developed to ensure compliance with requirements for routine inspection or reporting in the Virginia Stormwater BMP Clearinghouse specifications. BMPs must be inspected by a DEQ-Certified SWM inspector. Corrective measures must be carried out as soon as practicably feasible when needed.

6.2 Enforcement

While Dominion continues to hold its employees, consultants and contractors to strict environmental compliance standards, regulatory enforcement shall be administered by DEQ. Site-work construction firms under the employment of Dominion will be subject to contractual obligations, and Dominion will exercise its legal rights as necessary. Dominion may be required to submit relevant project documentation and plans for covered activities to DEQ to ensure consistency with these Standards and Specifications and applicable permit requirements. The DEQ

will serve as the VESCP and VSMP authority and will perform random site inspections or inspections in response to a complaint to assure compliance with the associated laws/regulations and these Standards and Specifications.

7.0 LONG-TERM MAINTENANCE

Where post-construction SWM is required, non-structural BMPs will be the preferred option. These features shall not be subject to routine inspection or reporting. Maintenance requirements shall be identified during routine patrolling of the ROW or during routine inspections of appurtenant facilties such as substations and switching stations. Corrective measures shall be carried out as soon as practicably feasible when needed. Long-term maintenance of structural SWM facilities shall be conducted in accordance with 9VAC25-870-58. The following details the maintenance requirements for structural BMPs.

7.1 BMP Maintenance Agreements

Where post-construction SWM controls are required within the electric transmission line ROW, Dominion Energy will show due diligence effort to obtain the appropriate land-owner approvals and legal authority to site the proposed SWM facility within the Dominion Energy easement. Where post-construction SWM controls are required at a substation or switching station property owned or leased by Dominion Energy, Dominion Energy will show due diligence effort to obtain the appropriate approvals and legal authority to site the proposed SWM facility. The approval shall include language to allow for the routine maintenance of the BMP to ensure that they continue to function as designed. All SWM facilities shall have an inspection and maintenance plan that identifies the owner and the party (or parties) responsible for carrying out the inspection and maintenance plan. The BMP maintenance agreement shall require the provision of long-term responsibility for and maintenance of SWM facilities and other techniques specified to manage the quality and quantity of runoff. Long-term maintenance of structural SWM facilities must be conducted in accordance with 9VAC25-870-112. To be consistent with the provisions of 9VAC25-870-112, maintenance plans for the stormwater facilities must be formally reviewed and approved by Dominion Energy prior to initiating the land-disturbing activity, made available to DEQ upon request, and must provide for inspections and maintenance and the submission of inspection and

maintenance reports to DEQ. The maintenance agreement for permanent SWM facilities will at a minimum:

1. Be drafted prior to the approval of the SWM plan;
2. Be stated to convey with the land;
3. Provide for all necessary access to the property for purposes of maintenance and regulatory inspections;
4. Provide for inspections and maintenance and the submission of inspection and maintenance reports to the VSMP authority; and
5. Be enforceable by the VSMP authority.

Appendix A

Vegetation Maintenance Plan

For Dominion Energy Electric Transmission Forestry

1.0 INTRODUCTION

Dominion Energy provides electricity to over 2.2 million customers and has over 6,400 miles of electric transmission lines. The service territory in Virginia extends from the Allegheny Mountains of western Virginia to the suburbs of Washington, D. C. and to the oceanfront of Virginia Beach. Maintenance of the transmission corridors is the primary responsibility of the Forestry Section of the Transmission Construction group. To ensure safe and reliable service to our customers, this Vegetation Maintenance Plan has been prepared and is included within the Dominion Energy Standards and Specifications for Erosion and Sediment Control and Stormwater Management.

Standards for Integrated Vegetation Management (IVM) on utility right-of-way (ROW) land have been developed by the American National Standards Institute (ANSI) as described in detail in American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Integrated Vegetation Management a. Electric Utility Rights-of-Way, 2012), and the companion publication, *Best Management Practices – Integrated Vegetation Management*. Each program described herein requires accurate and timely administration. In order to accomplish this, the Dominion Energy Forestry Section is staffed with experienced supervision, graduate foresters and International Society of Arboriculture Certified Arborists. Since ROW maintenance work is performed by outside Site-Work Contractors, oversight of the various contracts is another integral part of administration.

The primary goal is to have absolutely no electric transmission outage due to the lack of ROW maintenance related work so that electricity continues to flow to each and every customer.

2.0 RIGHT-OF-WAY MAINTENANCE PROGRAMS

In order to implement the following programs, it is necessary for the Forestry Coordinator to conduct surveys of each electric transmission line from substation to substation. This may be done by ground or air. These surveys yield information in the development and implementation of each maintenance program. Access, environmentally sensitive areas, species composition and density, conductor clearances, erosion, pest infestations and/or diseases, and encroachments must be known prior to maintenance operations.

2.1 Brush Control

Brush control is the term used to describe the process by which tall growing vegetation is eliminated from the ROWs. Tall growing trees, also referred to as “undesirables”, are trees or other vegetation that have the potential to grow to a height that could interfere with overhead conductors. Vines on towers, poles or guy wires are also considered undesirables. Controlling these undesirables is a necessary operation for any

electric utility. Control is accomplished through an IVM program as described in ANSI Standard A300 part 7 and the International Society of Arboriculture companion book *Best Management Practices – Integrated Vegetation Management*. This program includes herbicide applications, machine cutting or hand cutting.

2.1.1 Herbicide Application

Treating the undesirable brush with herbicides is one method of brush control. Dominion Electric Transmission is extremely conscientious with regard to the application of herbicides. Dominion Electric Transmission specifies both the chemical solutions and the methods of application to be used on its ROW, and specifies only those that have been approved and registered by the Environmental Protection Agency (EPA) for use in controlling ROW vegetation.

For herbicides to be effective they must enter the targeted plant via roots, stems, or leaves. Therefore, the methods of application vary depending upon the desired entryway. There are five basic techniques: dormant stem, cut surface, basal, foliar, and soil. The preferred method used by Dominion is selective foliar. The mixture of herbicides used are varied from one cycle to the next to avoid the development of resistance by the targeted plants, but Dominion uses general-use herbicides (similar to common household weed-killer). They work by interfering with metabolic processes specific to plants and have no effect on humans or animals when used properly. The concentrated forms of these products are no more harmful to animals than common household products like aspirin. Because they are so effective on plants, they are used in diluted solutions, usually less than 5%, the rest of which is water.

There are four means of dispersal: backpack, fixed nozzle-radiarc, handgun, and aerial. Very little of Dominion Electric Transmission's herbicide program incorporates aerial equipment. The majority of acres are done by utilizing a selective, low volume approach. This enables the contractor to treat only the undesirables and allow the herbaceous growth to flourish.

The establishment of low growing, diverse, herbaceous cover can be accomplished by using appropriate EPA-approved herbicides and selective methods of application. The combination of herbicides and selective application methods allows the retention of desirable vegetation and the elimination of undesirable tall woody plants. The result of selective herbicide applications is increased plant diversity, improved wildlife habitat and diversity, and the control of invasive plant species. Furthermore, there is improved safety and service reliability of the power supply.

Our licensed contractors perform this work for Dominion Energy Electric Transmission. Their personnel at the job site are either certified applicators or registered technicians in the Commonwealth of Virginia. Both

Dominion Electric Transmission and the selected contractors have an excellent history with the use of herbicides in vegetation management. Our herbicide suppliers take an active role in supplying additional information on herbicides used, as requested. More information on Dominion's use of herbicides is available at www.dom.com keyword "trees."

Selective vegetation management on ROWs offers many benefits to the environment. The property owners benefit from increased diversity of plant species. The environment benefits by having stable habitat conditions for plants and wildlife. Dominion Electric Transmission benefits from improved service reliability.

2.1.2 Mechanized Cutting

Machine cutting is a method of brush control which employs the use of all terrain machines. We utilize rotary, Fecon or flail type mowers mounted on a machine appropriate for the terrain Our mowers are specifically designed for ROW work and are capable of cutting trees up to six (6) inches in diameter and heavy densities of brush. The large farm-type tractors with a brush hog are also ideal for most ROW work and are capable of cutting trees up to four (4) inches in diameter. These machines do an excellent job of cutting and mulching the vegetation and leave the ROW with a mowed appearance. In some locations, portions of the ROW are selectively machine cut. Desirable species, those that top out at less than 10 to 15 feet at maturity (depending on the conductor height) are allowed to remain, producing a selected low-growing shrub type community. In accordance with the VRRM vegetation maintenance guidelines, mechanized cutting of the ROW occurs no more than four (4) times per year.

2.1.3 Hand Cutting

Contractors equipped with chain saws and brush axes normally do hand cutting of undesirable brush. Hand cutting by itself is considered an alternative method of brush control, however it is usually used in conjunction with chemical treatment. When chemically treating an area, trees that have grown to a height that exceeds the allowable limits are hand cut. Also, mountainous and low wet areas are hand cut since they are inaccessible to most machines. Hand cutting remains the most expensive method of brush control.

During routine brush cutting maintenance, our contractors are also responsible for chemically treating a three-foot radius around each Corten tower foundation.

3.0 HAZARD TREES

Trees along the ROW that are tall enough to endanger the conductors if it were to break at the stump or uproot and fall directly towards the conductors and exhibits signs or symptoms of disease or structural defect that make it an elevated risk for falling are designated as Hazard Trees. Examples of disease and structural defect are dead trees, leaning trees, various root diseases, weak crotches and rotten trunks. The location of the tree is also considered. For example, a tree growing on an eroding creek bank would be considered a Hazard Tree. Figure 1 shows some additional conditions that are considered when evaluating Hazard Trees for removal.

Dominion Energy's arborist will contact the property owner if possible before any Hazard Trees are cut except in emergency situations. The Vegetation Manager will field inspect the ROW and designate any Hazard Trees present. Qualified contractors working in accordance with Dominion Energy Electric Transmission specifications perform all Hazard Tree cutting.

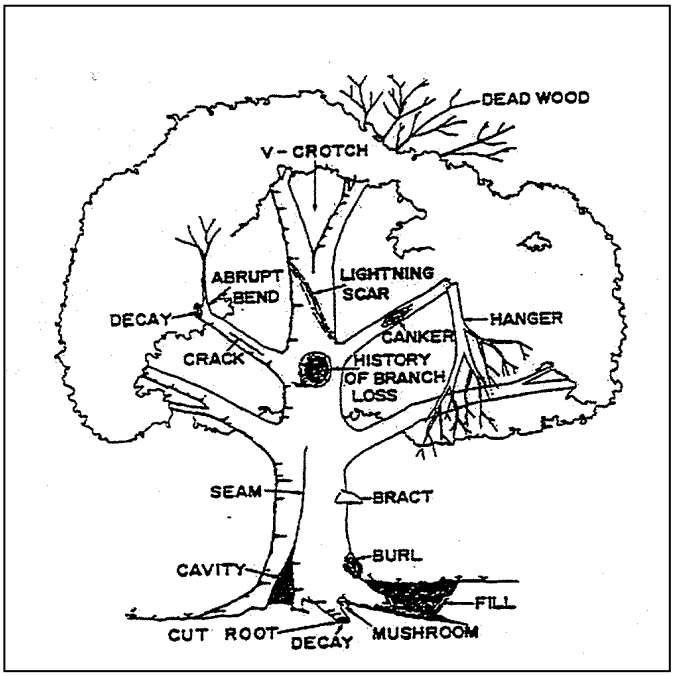


Figure 1. Some of the defects which may be associated with Hazard Trees

4.0 TREE PRUNING

Tree pruning plans, methods and practices are extremely important to the success of Dominion Energy Electric Transmission's Vegetation Management Program which is designed to minimize the effects of

electric transmission lines on the natural environment. Dominion Energy follows ANSI Standard A300 part 1 (Pruning).

Electric transmission lines may traverse through urban, residential, and/or rural areas; therefore, different pruning techniques are used to suit each situation. Another factor to consider is the voltage. In order for tree workers to safely work near energized wires the ANSI Standard Z-133 requires a minimum approach distance for qualified line clearance arborists of four feet, six(4'6"), for 115 kV circuits, seven feet, eleven inches (7'11") for 230 kV circuits and 19 feet for 500 kV circuits below 5000 feet of elevation.

Topping of trees is not considered an acceptable arboricultural practice (as stated in ANSI Standard A300 (Part 1)) and is avoided. Dominion Energy prefers to take the "Right Tree in the Right Place" approach by eliminating tree species from the ROW with the potential to grow tall enough to threaten the conductors and thereby need topping. The planting of low growing trees and shrubs that have the potential to fulfill their life cycle on the ROW undisturbed is encouraged.

Appendix B

Erosion and Sediment Control Practice Details

The following Construction details are taken from the Virginia Erosion and Sediment Control Handbook, (VESCH) Third Edition. Specific details and guidelines are covered more completely in Chapter 3 of the VESCH.

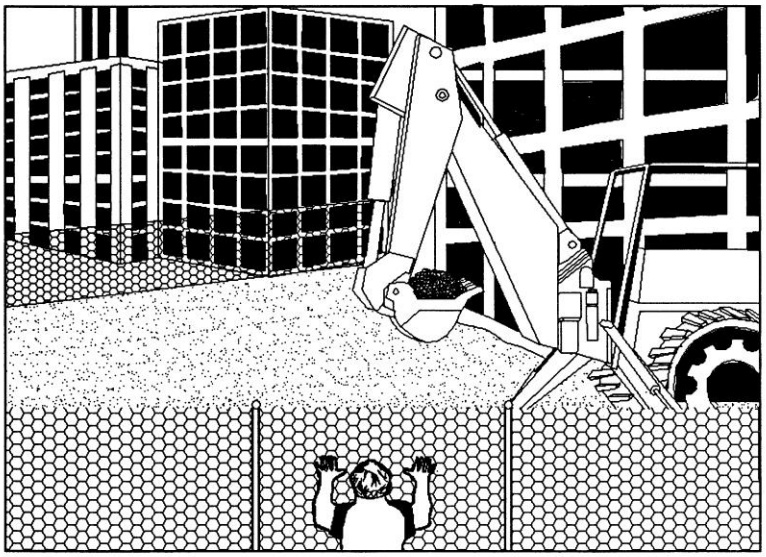
The Contractor shall go to the VESCH to reference practices that are covered in the specification but not listed below.

Practice	Title	Key
3.01	Safety Fence	SAF
3.02	Temporary Stone Construction Entrance	CE
3.04	Straw Bale Barrier	STB
3.05	Silt Fence	SF
3.07	Storm Drain Inlet Protection	IP
3.08	Culvert Inlet Protection	CIP
3.09	Temporary Diversion Dike	DD
3.10	Temporary Fill Diversion	FD
3.11	Temporary ROW Diversion	RWD
3.12	Diversion	DV
3.18	Outlet Protection	OP
3.19	RipRap	RR
3.20	Rock Check Dams	CD
3.24	Temporary Vehicular Stream Crossing	SC
3.25	Utility Stream Crossing	USC
3.26	Dewatering Structure	DS
3.36	Soil Stabilization Blankets & Matting	B/M

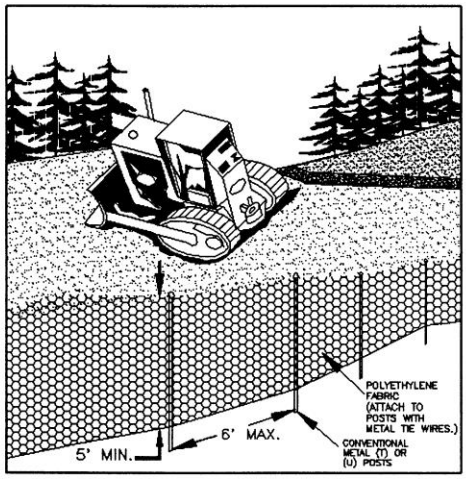
The following items are specific to the practices within this document and are not found in the VESCH manual. Details for these items are located at the end of this appendix following the items listed above.

Mat Stabilization	MS
Geotextile Bag/Dewatering Bag	GB
Concrete Wash Pit	CWP
Straw Wattles	SW

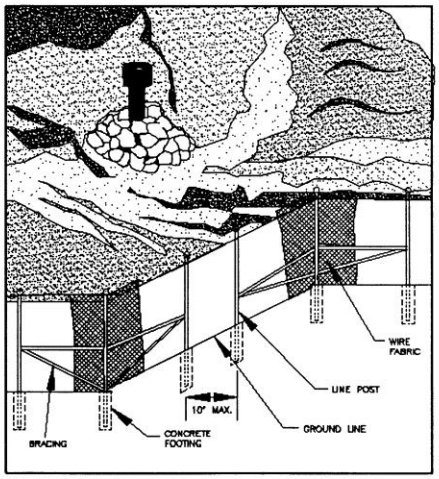
SAFETY FENCE



PERSPECTIVE VIEW



PERSPECTIVE VIEW
PLASTIC FENCE

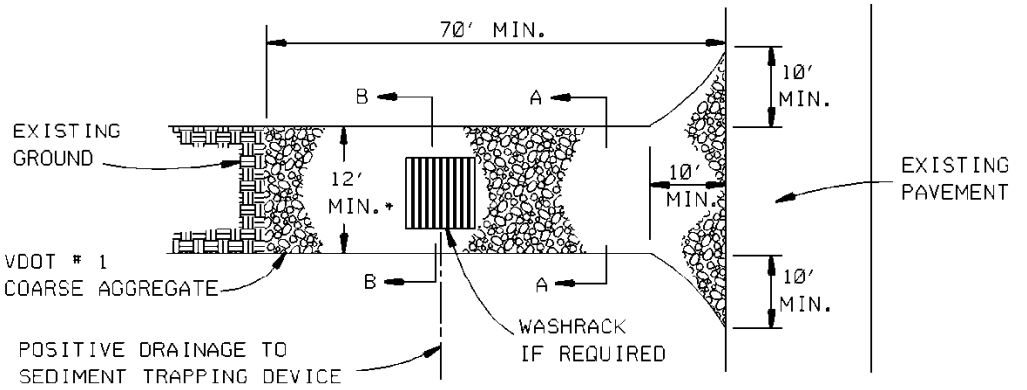


PERSPECTIVE VIEW
METAL FENCE

Source: Adapted from Conwed Plastics and VDOT Road and Bridge Standards

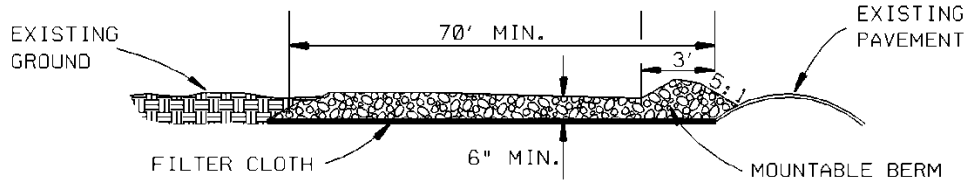
Plate 3.01-1

STONE CONSTRUCTION ENTRANCE - 3.02

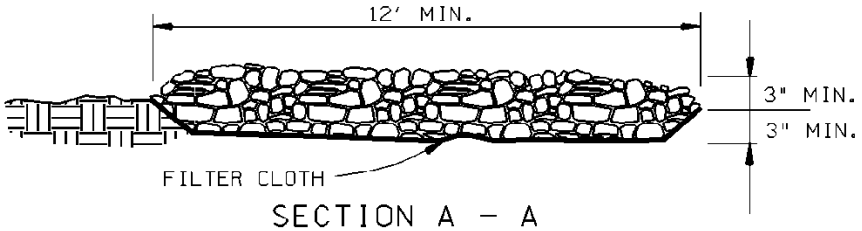


* MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

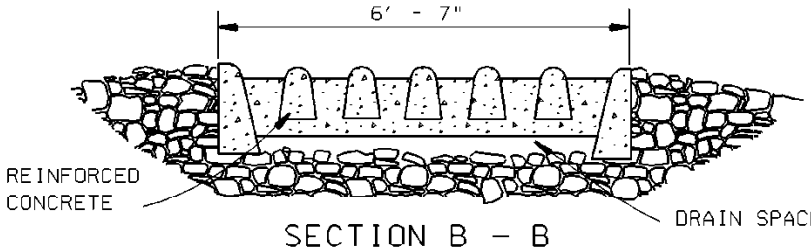
PLAN VIEW



ELEVATION



SECTION A - A



SECTION B - B

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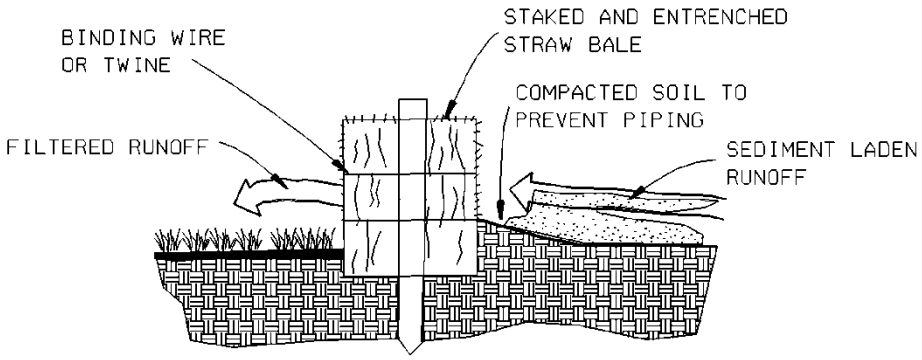
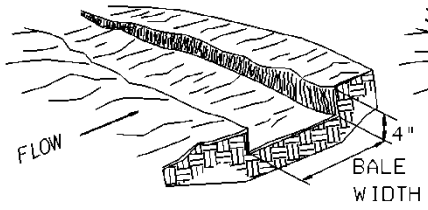
STRAW BALE BARRIER - 3.04

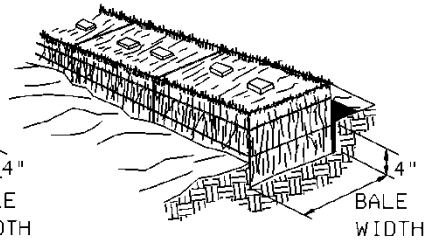


PROPERLY INSTALLED STRAW BALE
CROSS SECTION

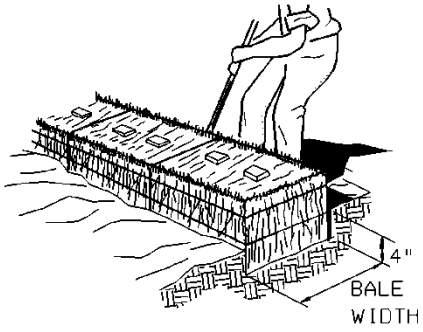
1. EXCAVATE THE TRENCH



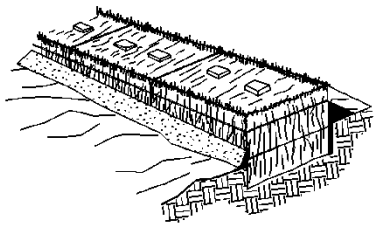
2. PLACE AND STAKE STRAW BALES



3. WEDGE LOOSE STRAW BETWEEN BALES



4. BACKFILL AND COMPACT THE EXCAVATED SOIL

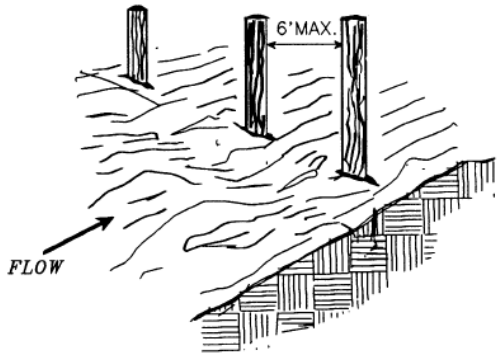


CONSTRUCTION OF STRAW BALE BARRIER

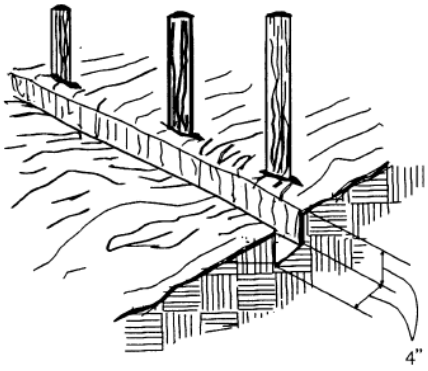
vae304.dgn

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

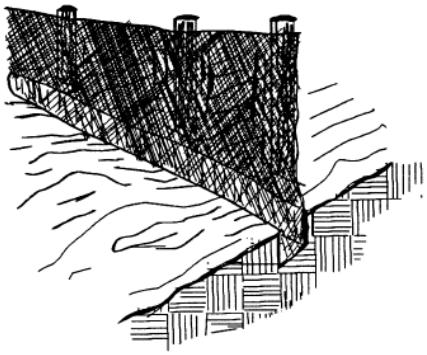
1. SET THE STAKES.



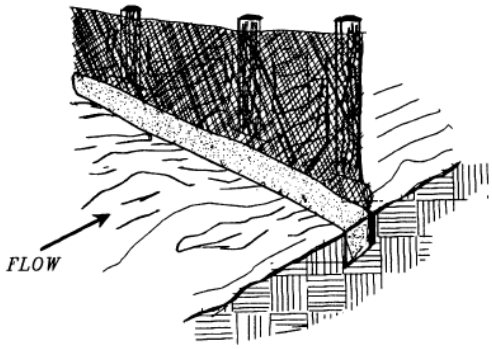
2. EXCAVATE A 4"X 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.



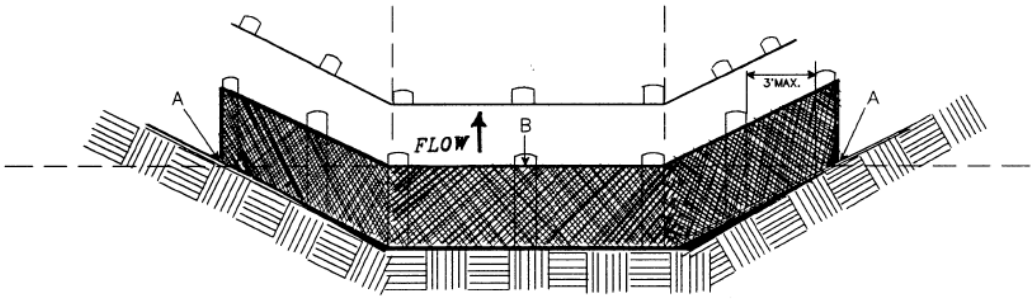
3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



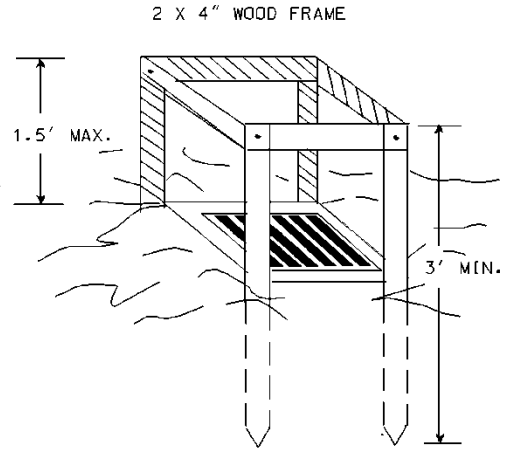
SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)

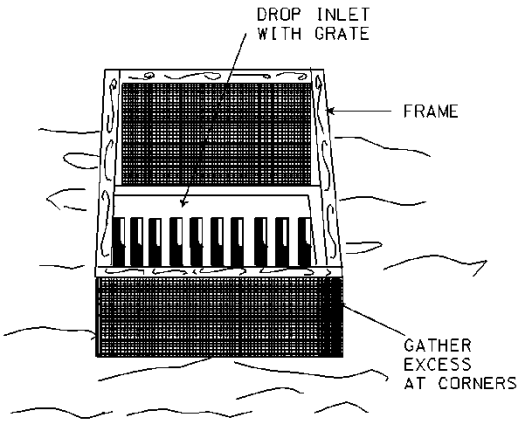


POINTS A SHOULD BE HIGHER THAN POINT B.

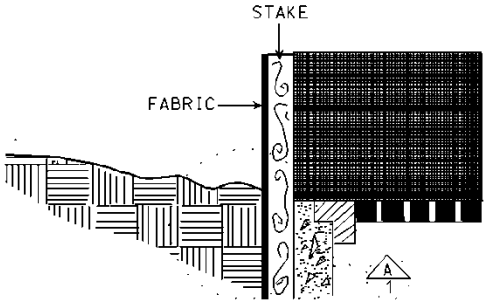
DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)

SILT FENCE DROP INLET PROTECTION - 3.07-1

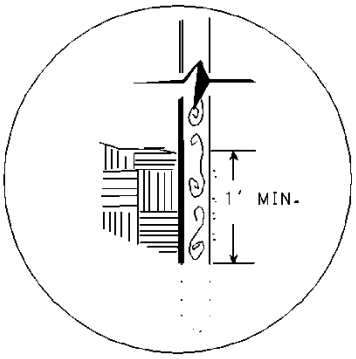




PERSPECTIVE VIEWS



ELEVATION OF STAKE AND FABRIC ORIENTATION

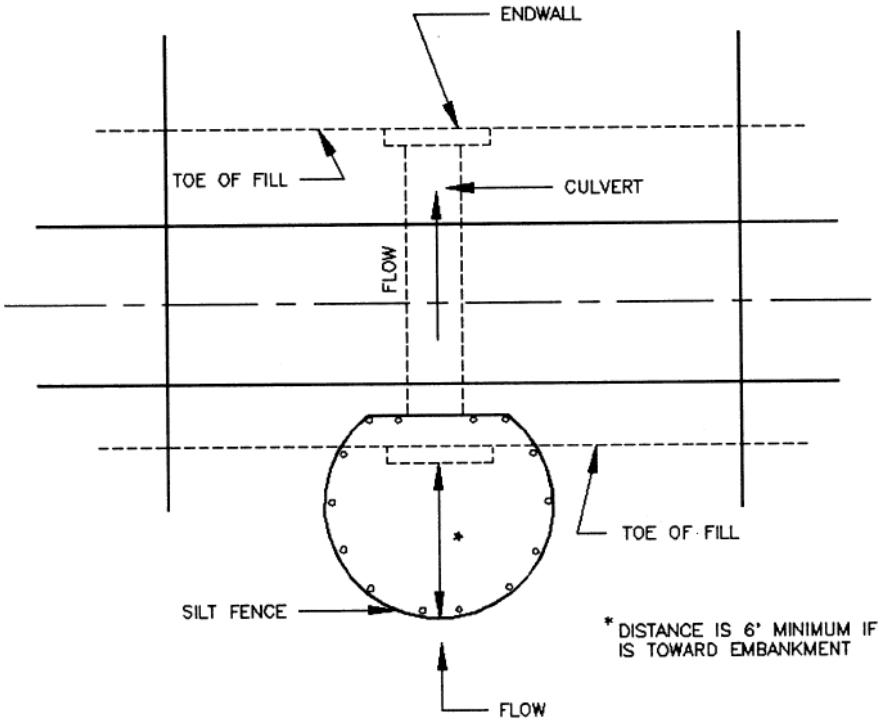


DETAIL A

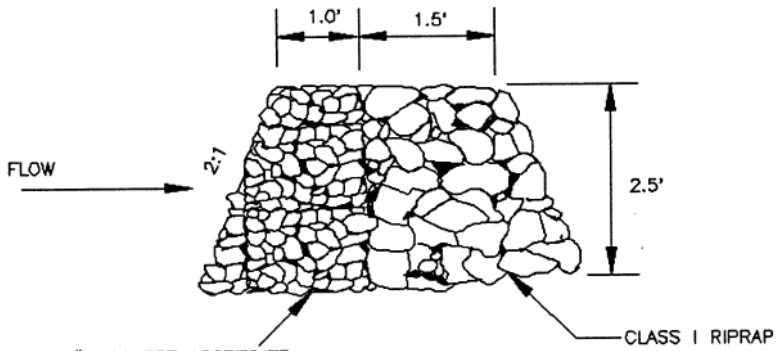
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

SILT FENCE CULVERT INLET PROTECTION

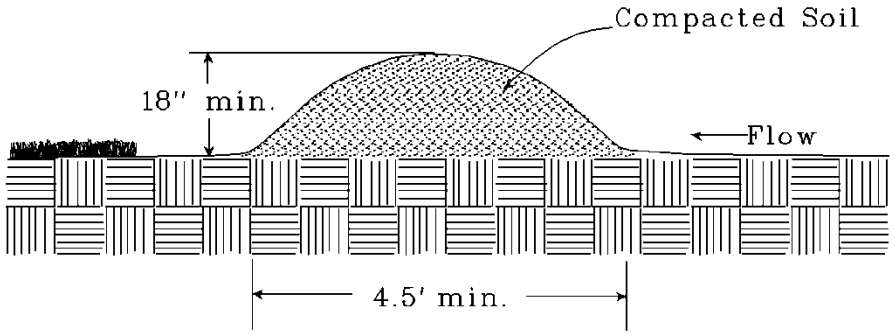


OPTIONAL STONE COMBINATION**

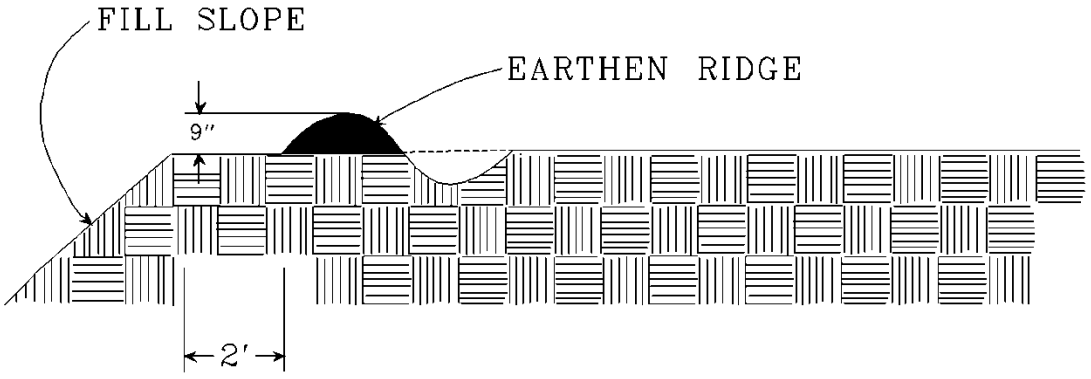


** VDOT #3, #357 OR #5 COARSE AGGREGATE TO REPLACE SILT FENCE IN " HORSESHOE " WHEN HIGH VELOCITY OF FLOW IS EXPECTED

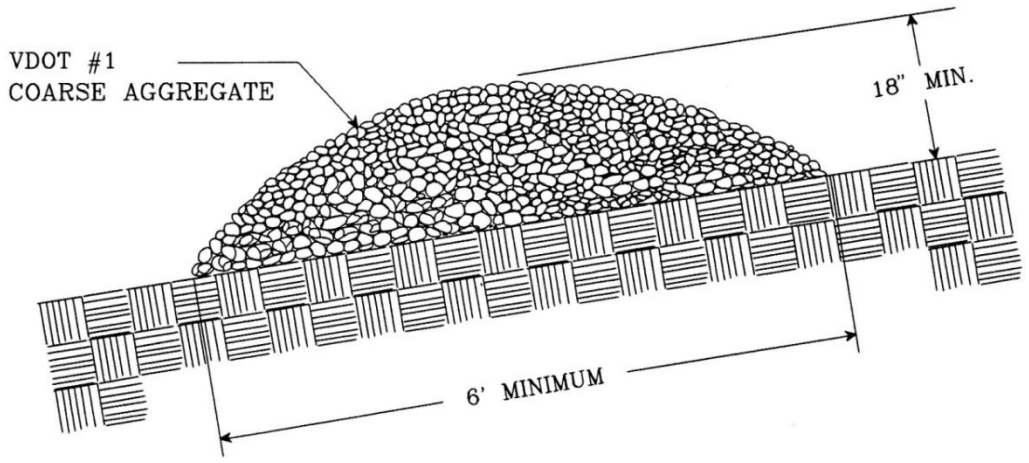
TEMPORARY DIVERSION DIKE - 3.09



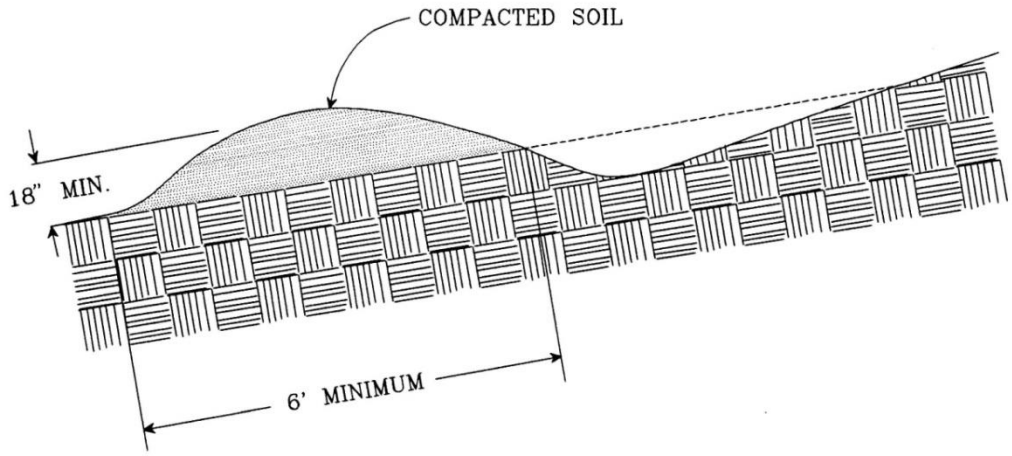
TEMPORARY FILL DIVERSION - 3.10



TEMPORARY RIGHT-OF-WAY DIVERSIONS

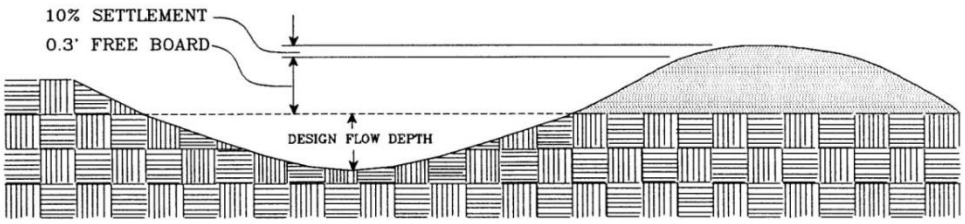


TYPICAL GRAVEL STRUCTURE

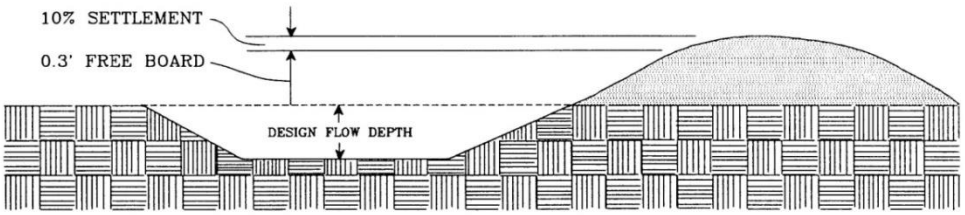


TYPICAL EARTHEN STRUCTURE

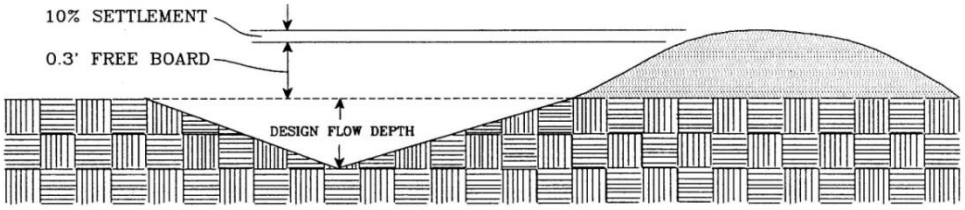
DIVERSIONS



TYPICAL PARABOLIC DIVERSION



TYPICAL TRAPEZOIDAL DIVERSION



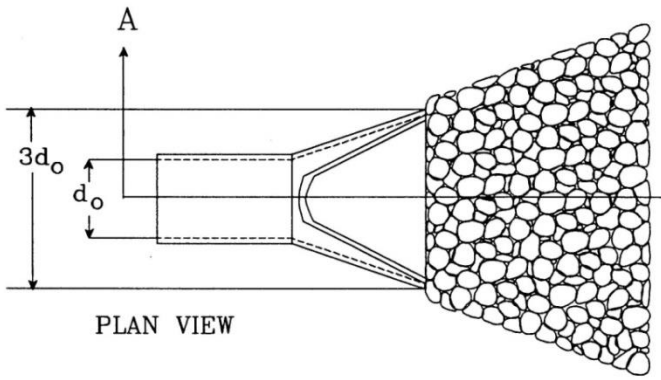
TYPICAL VEE-SHAPED DIVERSION

TABLE 3.11-A

SPACING OF RIGHT-OF-WAY DIVERSIONS

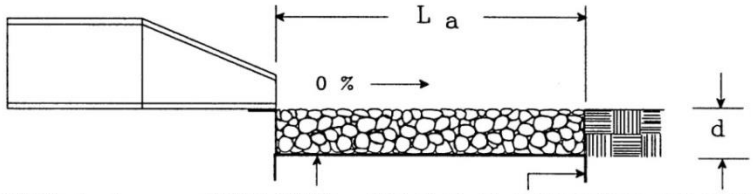
% Slope	Spacing (ft.)
Less than 7%	100
Between 7% and 25%	75
Between 25% and 40%	50
Greater than 40%	25

PIPE OUTLET CONDITIONS



PLAN VIEW

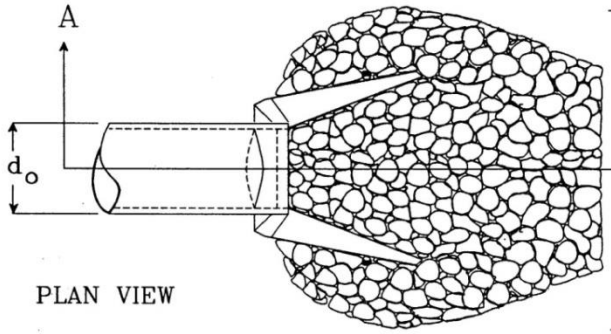
PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL



SECTION A–A

FILTER CLOTH

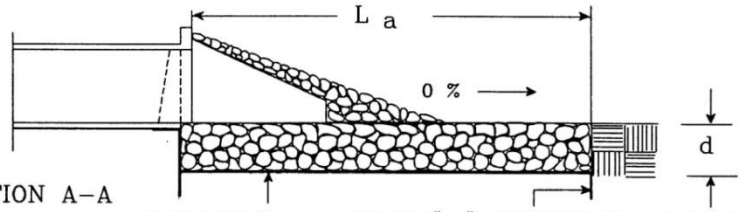
KEY IN 6"–9"; RECOMMENDED FOR ENTIRE PERIMETER



PLAN VIEW

3d o (MIN.)

PIPE OUTLET TO WELL DEFINED CHANNEL



SECTION A–A

FILTER CLOTH

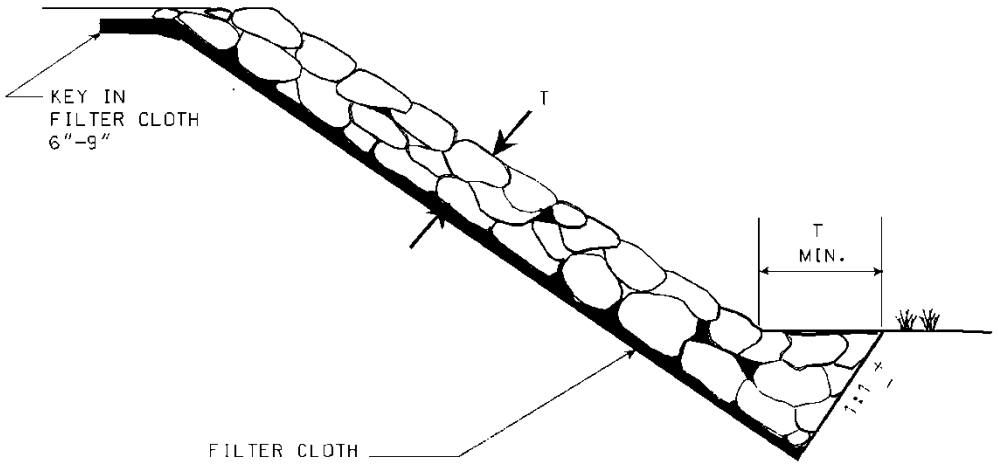
KEY IN 6"–9"; RECOMMENDED FOR ENTIRE PERIMETER

NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18–3 AND 3.18–4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

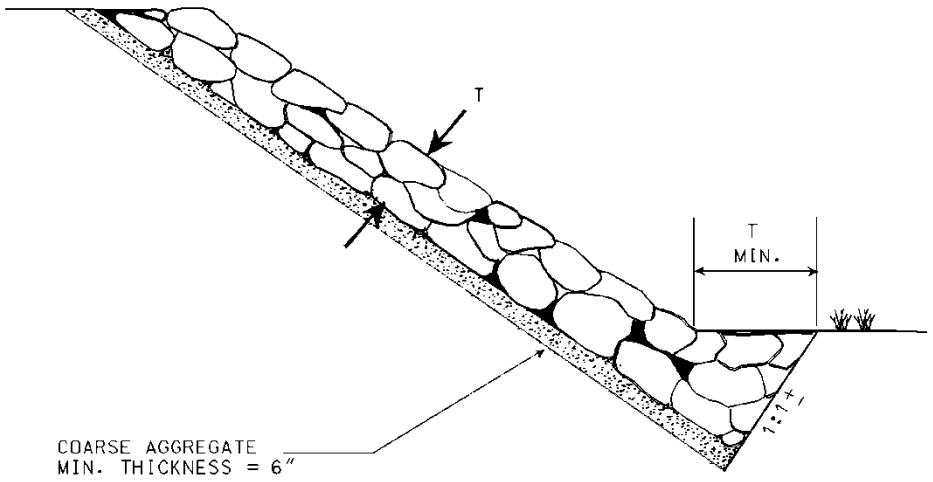
TOE REQUIREMENTS FOR BANK STABILIZATION - 3.19

FILTER CLOTH UNDERLINER

(PREFERRED)

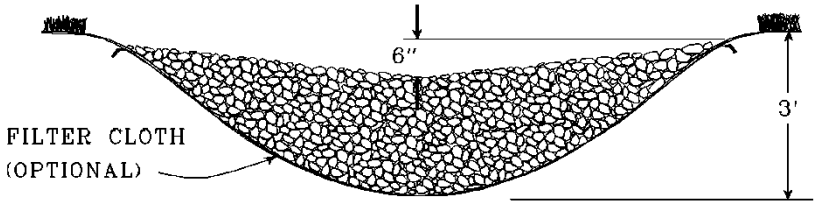


GRANULAR FILTER

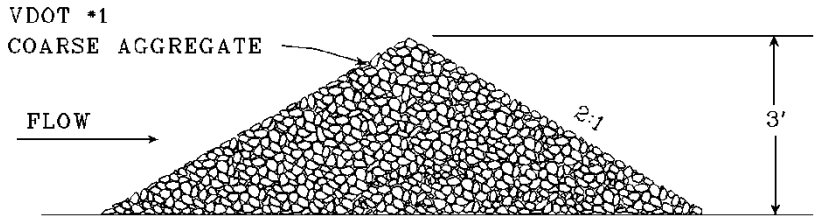


ROCK CHECK DAM - 3.20

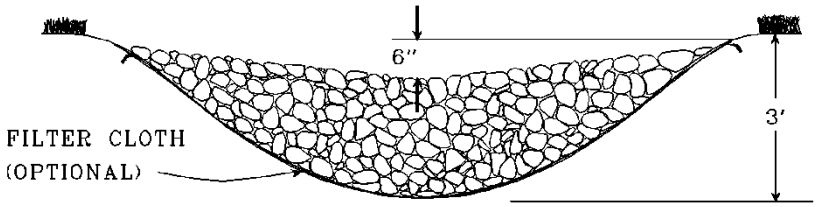
2 ACRES OR LESS OF DRAINAGE AREA:



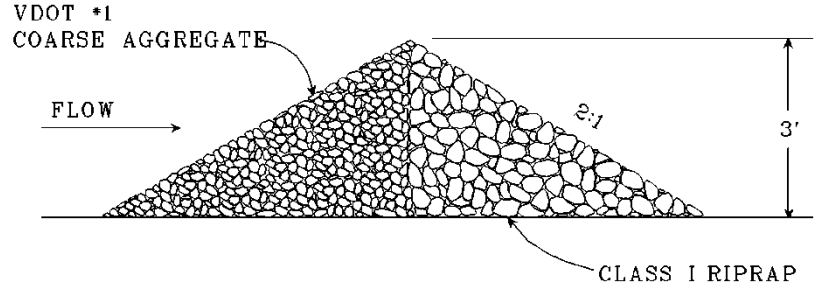
(DOWNSTREAM VIEW)



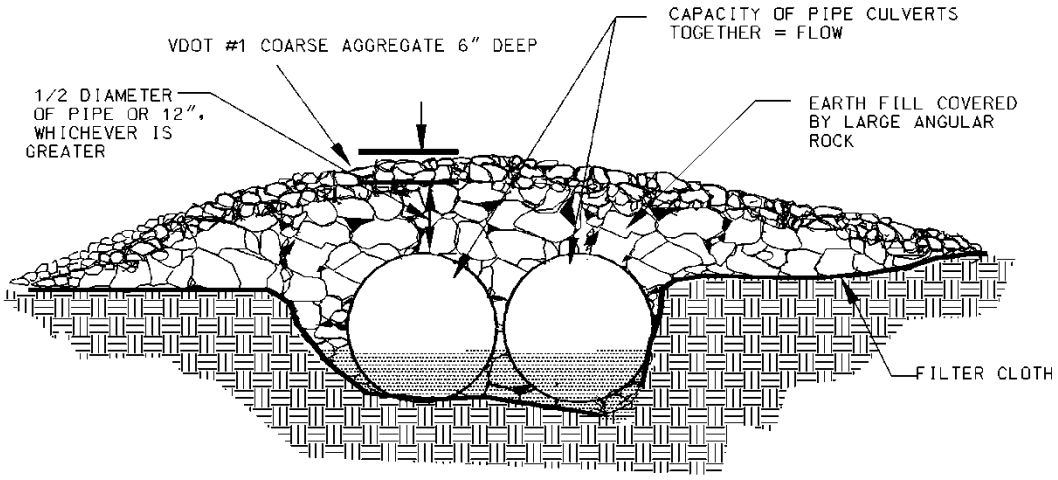
2-10 ACRES OF DRAINAGE AREA:



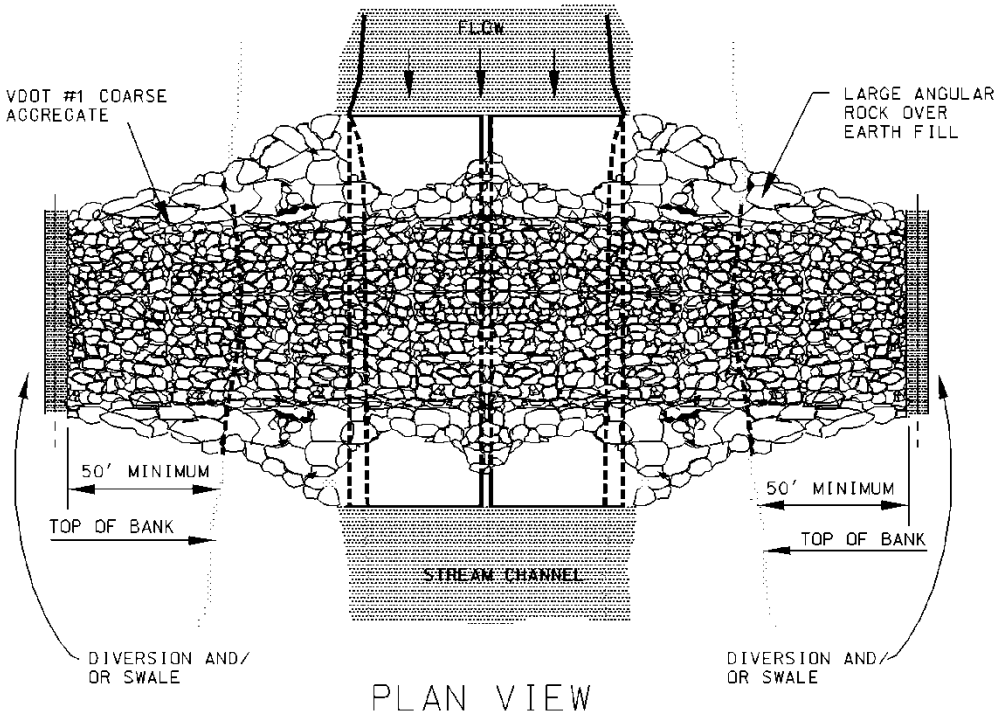
(DOWNSTREAM VIEW)



TEMPORARY CULVERT CROSSING - 3.24

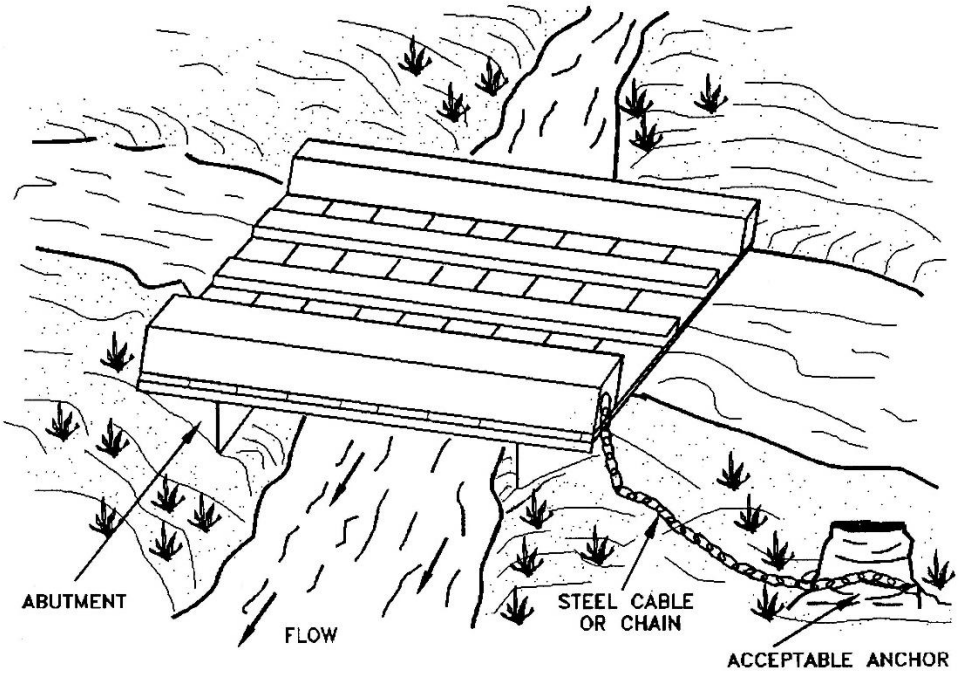


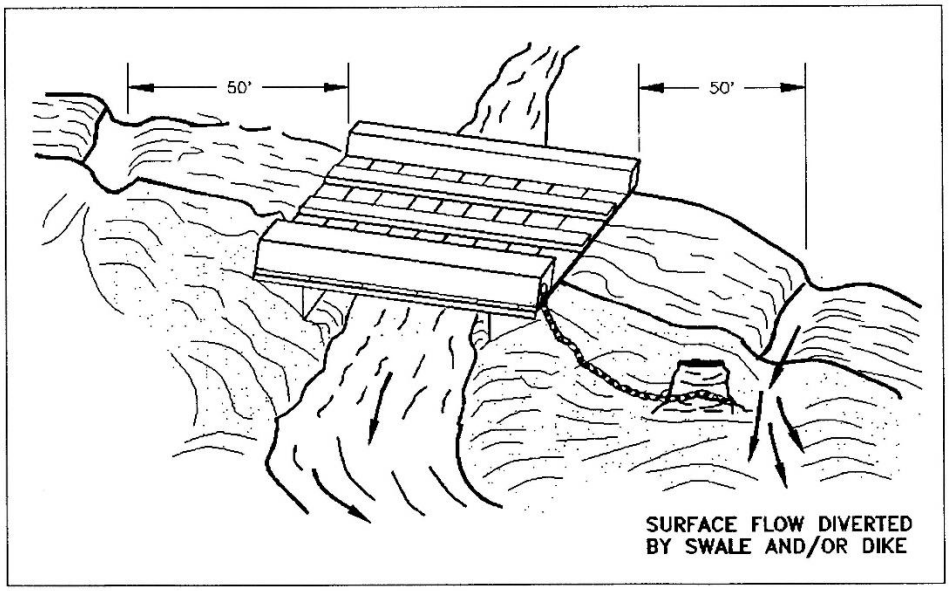
ELEVATION



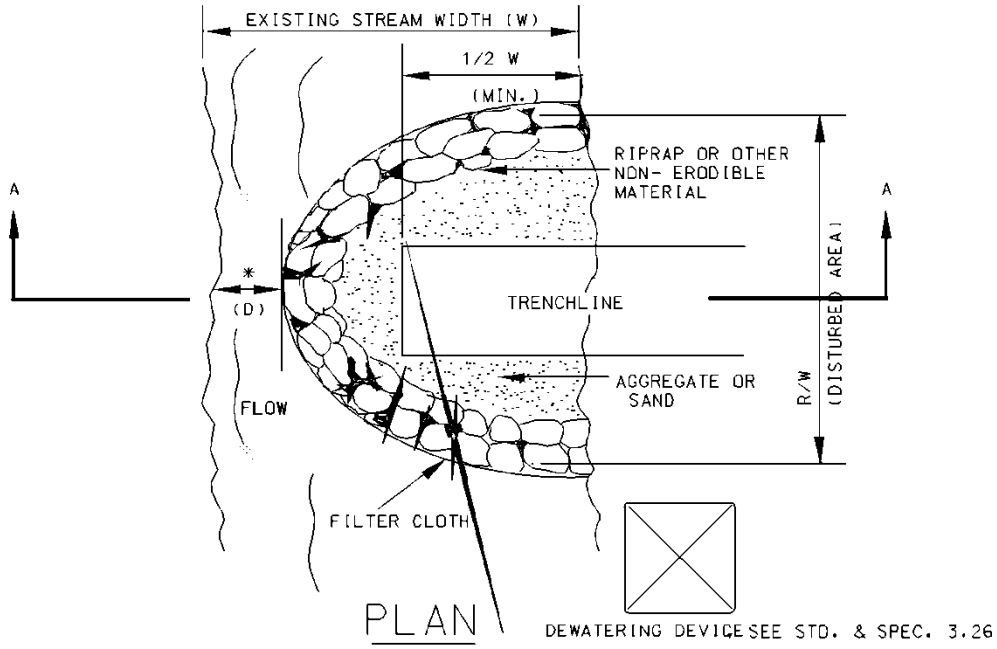
PLAN VIEW

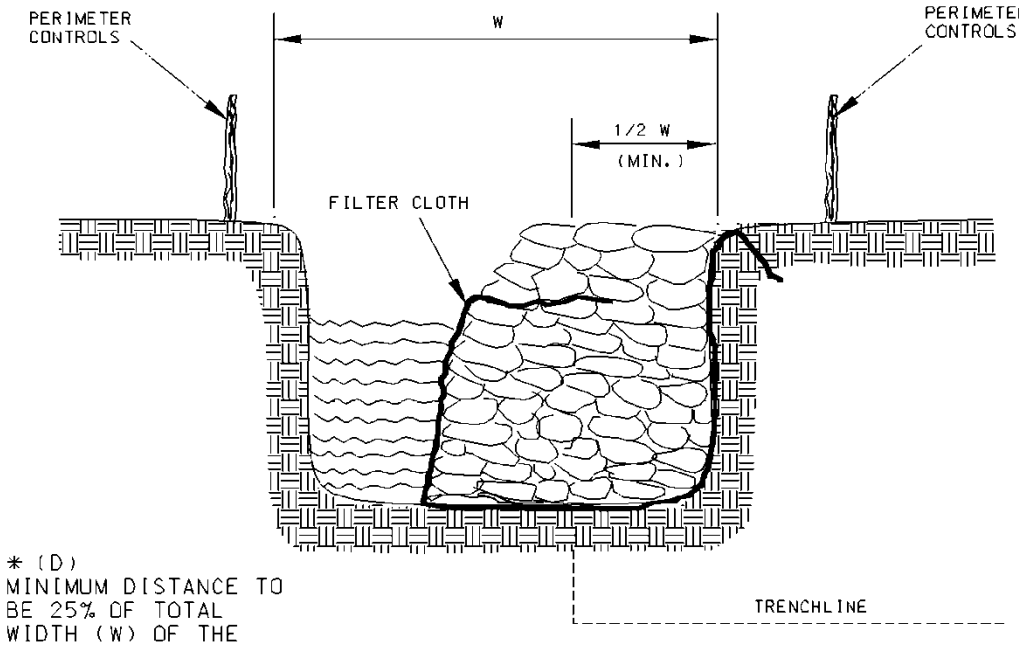
TEMPORARY BRIDGE CROSSING





COFFERDAM CROSSING - 3.25

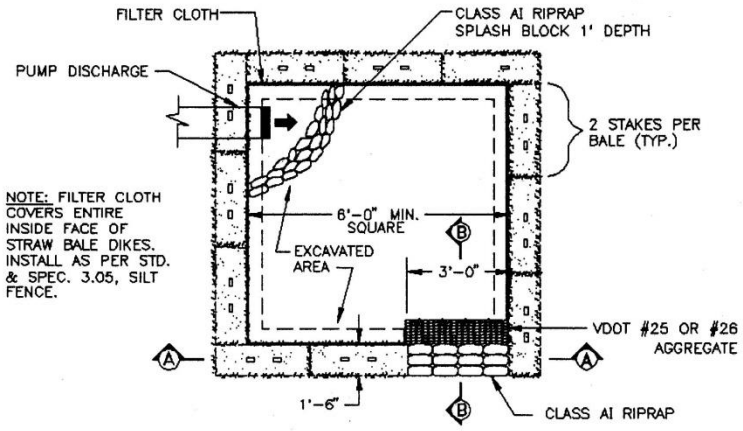




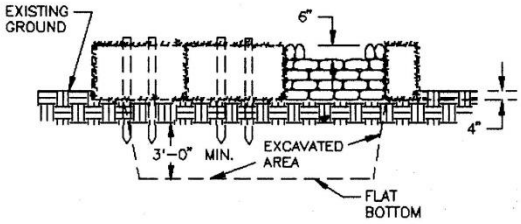
* (D)
MINIMUM DISTANCE TO BE 25% OF TOTAL WIDTH (W) OF THE STREAM.

SECTION A-A

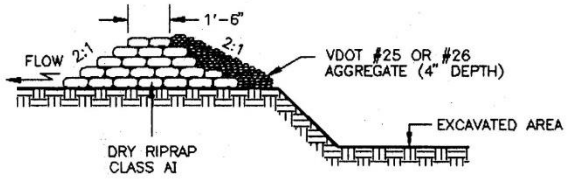
STRAW BALE/SILT FENCE PIT



PLAN VIEW



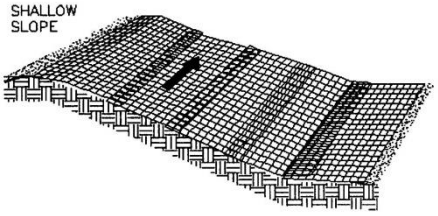
CROSS-SECTION A-A



CROSS-SECTION B-B

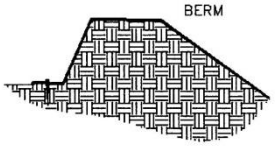
TYPICAL ORIENTATION OF TREATMENT – 1 (SOIL STABILIZATION BLANKET)

SHALLOW SLOPE

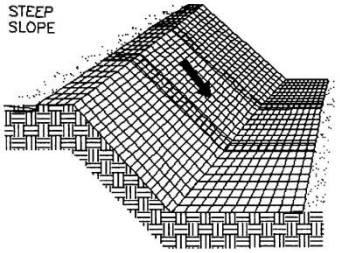


ON SHALLOW SLOPES, STRIPS OF NETTING PROTECTIVE COVERINGS MAY BE APPLIED ACROSS THE SLOPE.

WHERE THERE IS A BERM AT THE TOP OF THE SLOPE, BRING THE MATERIAL OVER THE BERM AND ANCHOR IT BEHIND THE BERM.

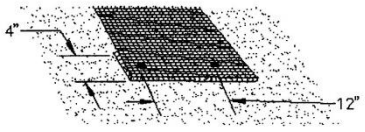


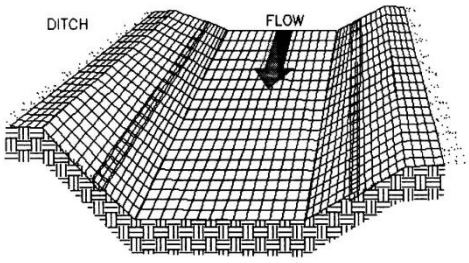
STEEP SLOPE



ON STEEP SLOPES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW AND ANCHOR SECURELY.

BRING MATERIAL DOWN TO A LEVEL AREA BEFORE TERMINATING THE INSTALLATION. TURN THE END UNDER 4" AND STAPLE AT 12" INTERVALS.





IN DITCHES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. USE CHECK SLOTS AS REQUIRED. AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE.

TIMBER MAT (1 of 5)

ATTACHMENT. II
MAT Specifications & Dimensions

3 Ply Laminated Mat 8' x 14'

- 2" x 8" oak boards; rough cut
- Top – (9) 14' boards equally spaced
- Middle – (15) 8' boards equally spaced
- Bottom – (9) 14' boards equally spaced
- (95) 3/8" bolts w/flange nut; bolts flush with nut or can be countersunk
- (2) 3/8" hoist chains
- *See Exhibit "Dominion 3 Ply Spec/Bolt Pattern"

2 Ply Laminated Mat 8' x 14'

- 2" x 8" oak boards; rough cut
- Top – (9) 14' boards equally spaced
- Bottom – (9) 8' boards equally spaced
- (77) 3/8" bolts w/flange nut; bolts flush with nut or can be countersunk
- Hoist chains not required
- *See Exhibit "Dominion 2 Ply Spec/Bolt Pattern"

Crane Mats 12"4' x 12' and 12" 4'x8'

1220 Crane Mat Specification

- (4) 12"x 12" Solid Oak stock 20' long
- Bolted together with 1" steel threaded rod; recessed with nut and washer; end rods to be 12-14 inches from end with remaining rods equal distant.
- *See Exhibit "Dominion Crane Mat Spec and Pattern"

820 Crane Mat Specification

- (4) 8"x 8" Solid Oak stock 20' long
- Bolted together with 1" steel threaded rod; recessed with nut and washer; end rods to be 12-14 inches from end with remaining rods equal distant.
- *See Exhibit "Dominion Crane Mat Spec and Pattern"

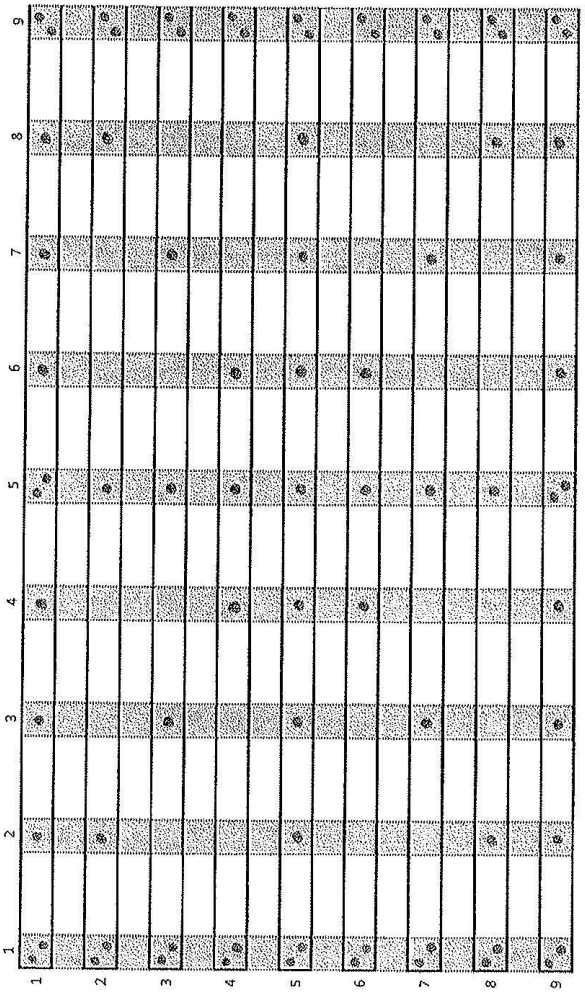
***** Mats to be designed using Dominion's standard specification, See Material Specs And Requirements per Attachment II .**

***** ALL boards shall be solid OAK and no mixed hardwood will be accepted for Mat Materials regarding this bid.**

1

TIMBER MAT (2 of 5)

DOMINION
2 PLY MAT SPEC/BOLT PATTERN
8' X 14'

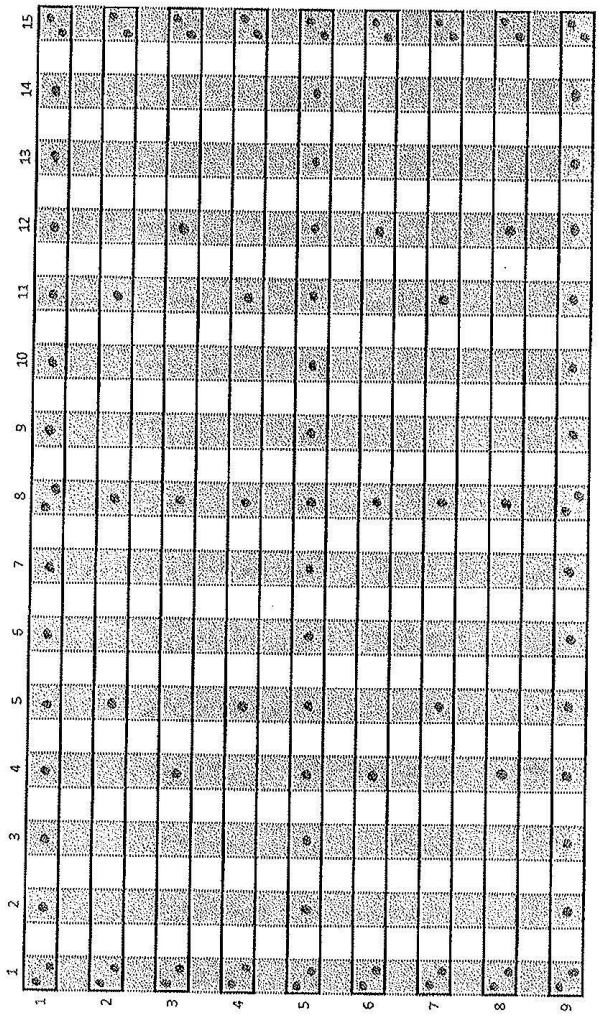


77 Bolts (No Hoist Chain required)

2012

TIMBER MAT (3 of 5)

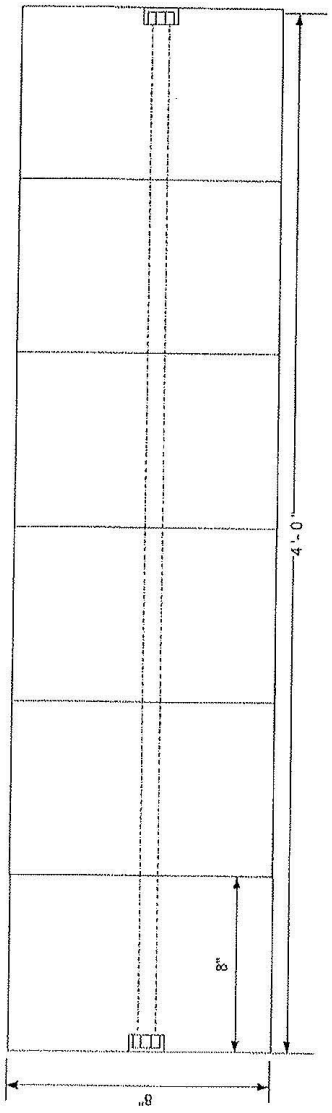
DOMINION
3 PLY MAT SPEC/BOLT PATTERN
8' X 14'



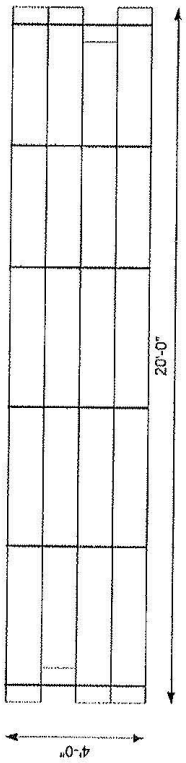
95 Bolts w/hoisting 3/8"chain - attached to board 4 & 6 ends

2012

TIMBER MAT (4 of 5)



END SECTION VIEW



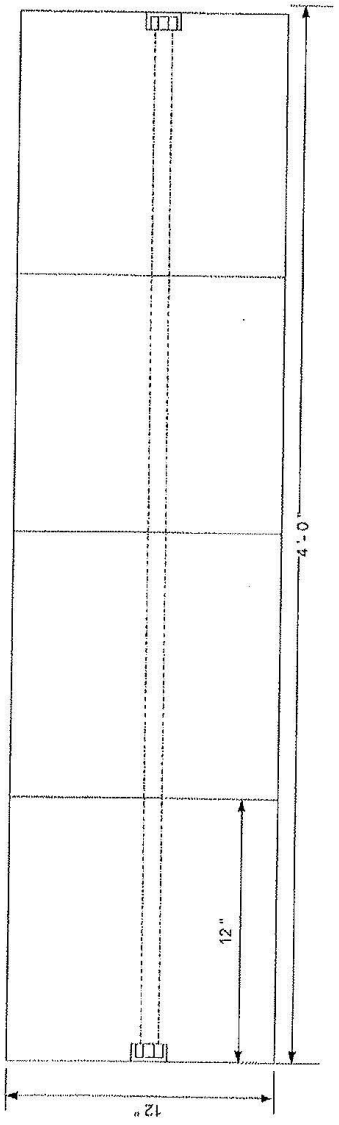
PLAN VIEW

(6) 1" Recessed Threaded Rod

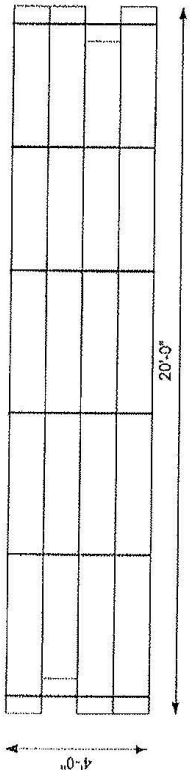
820 CRANE MAT

Dominion 2012

TIMBER MAT (5 of 5)



END SECTION VIEW



PLAN VIEW

(6) 1" Recessed Threaded Rod

1220 CRANE MAT

Dominion 2012

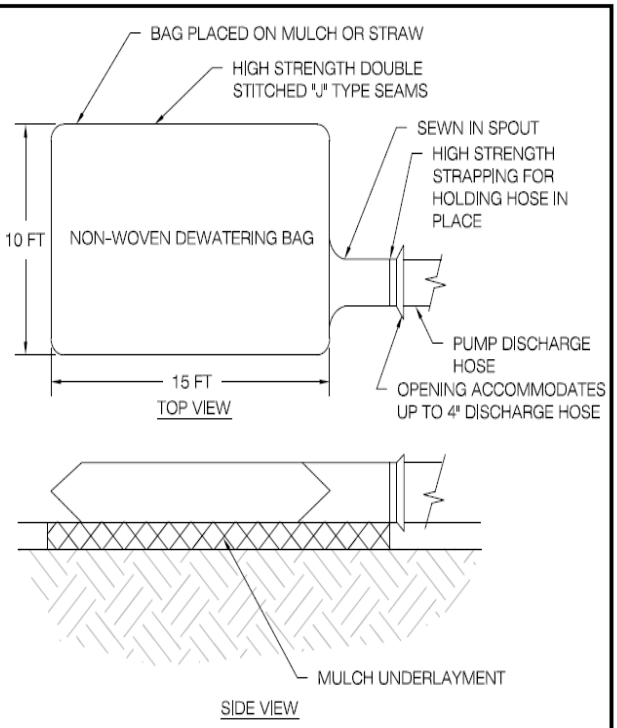
GEOTEXTILE BAG/DEWATERING BAG

THE DEWATERING BAG SHALL BE MADE OF NON-WOVEN GEOTEXTILE WITH A MIN. SURFACE AREA OF 225 SQUARE FEET PER SIDE. ALL STRUCTURAL SEEMS SHALL BE SEWN WITH A DOUBLE STITCH USING A DOUBLE NEEDLE MACHINE WITH HIGH STRENGTH THREAD. THE SEAM STRENGTH SHALL WITHSTAND 100 LB/IN USING ASTM D-4884 TEST METHOD. THE DEWATERING BAG SHALL HAVE A NOZZLE LARGE ENOUGH TO ACCOMMODATE A FOUR INCH DISCHARGE HOSE. THE NOZZLE SHALL BE SEALED TIGHTLY AROUND THE DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE TO PREVENT UNTREATED WATER FROM ESCAPING. THE GEOTEXTILE FABRIC SHALL BE A NON-WOVEN FABRIC WITH THE FOLLOWING PROPERTIES:

GEOTEXTILE FABRIC FOR DEWATERING BAG			
PROPERTIES	TEST METHOD	UNITS	DEWATERING BAG 12 OZ
WEIGHT	ASTM D-3776	OZ/YD	12
GRAB TENSILE	ASTM D-4632	LBS.	300
PUNCTURE	ASTM D-4833	LBS.	175
FLOWRATE	ASTM D-4491	GAL/MIN/FT2	70
PERMITIVITY	ASTM D-4491	1,3 SEC-1	1
MULLEN BURST	ASTM D-3786	LBS.IN2	580
UV RESISTANT	ASTM D-4355	%	70
AOS % RETAINED	ASTM D-4751	0.40-0.80 MM	100

NOTE:
ALL PROPERTIES ARE MINIMUM AVERAGE ROLL VALUE EXCEPT THE WEIGHT OF THE FABRIC WHICH IS GIVEN FOR INFORMATION ONLY.

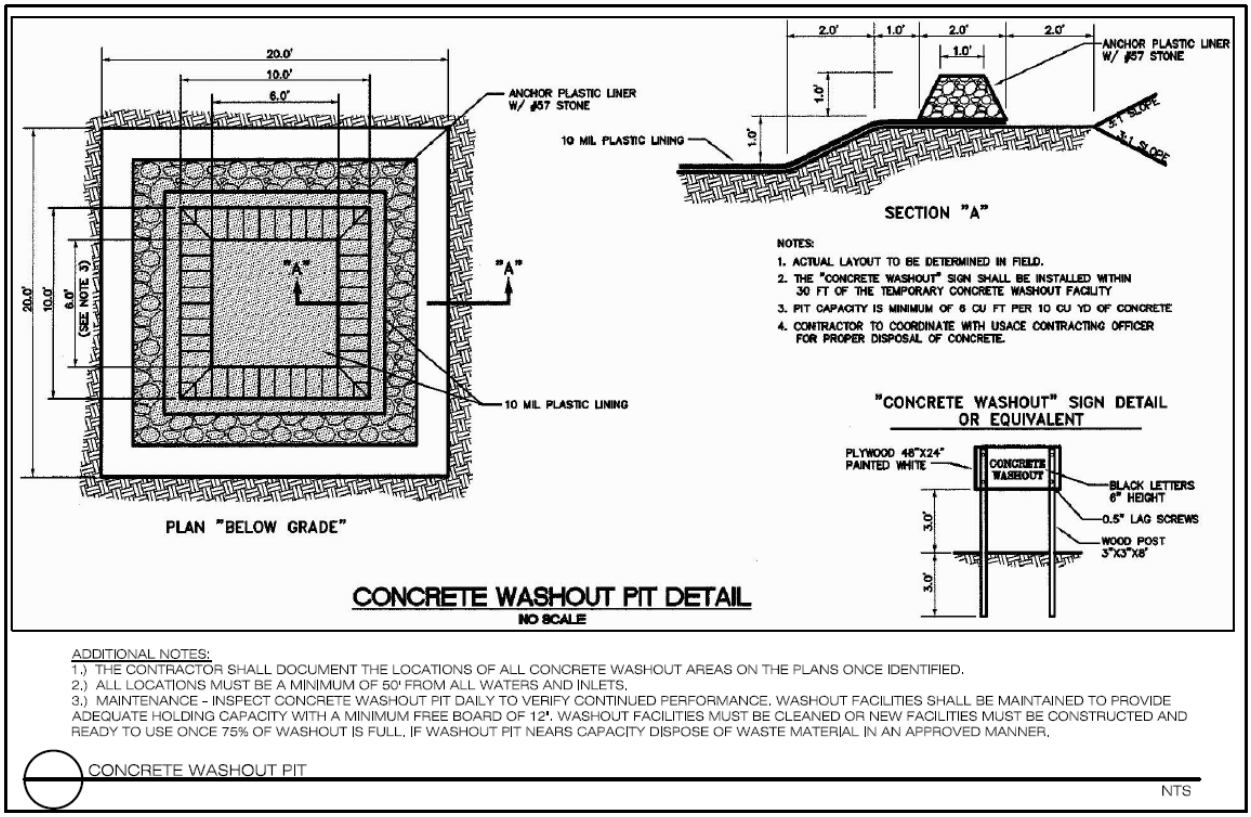
CONSTRUCTION:
THE DEWATERING BAG SHALL BE INSTALLED OVER A 3 INCH GRAVEL BASE TO PROMOTE INFILTRATION AND DEWATERING OF THE BAG.



DETAIL: GEOTEXTILE BAG (DEWATERING BAG)

NTS

CONCRETE WASH PIT



ADDITIONAL NOTES:

1.) THE CONTRACTOR SHALL DOCUMENT THE LOCATIONS OF ALL CONCRETE WASHOUT AREAS ON THE PLANS ONCE IDENTIFIED.

2.) ALL LOCATIONS MUST BE A MINIMUM OF 50' FROM ALL WATERS AND INLETS.

3.) MAINTENANCE - INSPECT CONCRETE WASHOUT PIT DAILY TO VERIFY CONTINUED PERFORMANCE. WASHOUT FACILITIES SHALL BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREE BOARD OF 12". WASHOUT FACILITIES MUST BE CLEANED OR NEW FACILITIES MUST BE CONSTRUCTED AND READY TO USE ONCE 75% OF WASHOUT IS FULL. IF WASHOUT PIT NEARS CAPACITY DISPOSE OF WASTE MATERIAL IN AN APPROVED MANNER.

CONCRETE WASHOUT PIT

NTS

STRAW WATTLES

Installation Instructions
Logs and Wattles

Step 1 - Site Preparation

Prepare site to design profile and grade. Remove debris, rocks, clods, etc.. Ground surface should be smooth prior to installation to ensure log remains in contact with slope.

Step 2 - Staple Selection

At a minimum, 1 in. by 1 in. by 24 in., stakes are to be used to secure the log to the ground surface. Installation in rocky, sandy or other loose soil may require longer stakes.

Slope Installation

Place RECP along slope to provide upstream apron for log. Secure RECP according to standard slope installation instructions including upstream anchor trench. Secure log to blanket, ensuring log remains in intimate contact with the RECP over the length of the installation. A minimum of one foot upstream apron and two foot downstream apron are required for installation. Subsequent, downslope rows of logs should be spaced appropriately for site conditions to minimize acceleration of flow. Further, log seams are to be offset to ensure continuous filtration. Figure A presents a schematic of a slope installation in profile view.

Channel Installation

Place RECP along channel to provide upstream and downstream apron for log identically to slope installation. Secure log to blanket, ensuring log remains in intimate contact with the RECP over the length of the installation. A minimum of one foot upstream apron and two foot downstream apron are required for installation. Subsequent, downslope rows of logs should be spaced appropriately for site conditions to minimize acceleration of flow. Further, log seams are to be offset to ensure continuous filtration. Figure A / Figure C presents a schematic of a channel installation.

Drain Filter Installation

Surround drain inlet to be protected with log, ensuring seams are overlapping to minimize flow circumventing log. Secure logs to ground surface ensuring the log remains in intimate contact with the ground surface over the entire installation. Provide RECP apron secured to the ground surface between drain and log.

Please contact Western Excelsior Technical Support Division at 800-967-4009 with specific questions or for further information.

Slope/Channel Installation

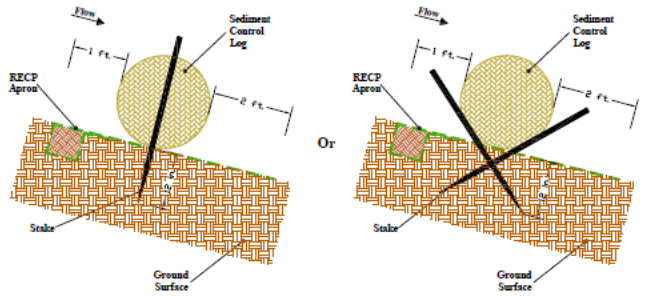


Figure A - Profile View

Flat Ground
(Perimeter Guard) Installation

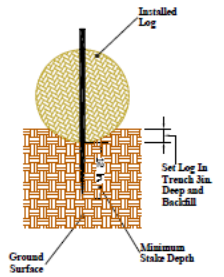
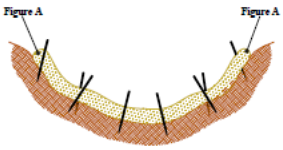


Figure B - Profile View

Channel Installation



Minimum stake in ground, 12 in.

Do not allow flow to overtop installation.

Figure C - Cross-Section View

Drain Filter

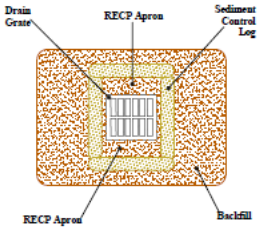


Figure D - Cross-Section View

Curbside Installation

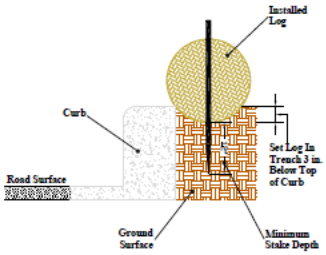


Figure E - Cross-Section View

Document # WE_EXCEL_LOG_II

APPENDIX C

FINAL REHAB OF TEMPORARY STONED ACCESSES

In an effort to eliminate the potential for temporary construction stone accesses negatively affecting the pre-construction stormwater runoff characteristics, the following restoration practices are employed.

The description provided here is the typical approach used across Dominion Energy Electric Transmission operations. Site specific conditions may require alternative restoration techniques.

1. Using a dozer, or similar equipment, with rear ripper attachment, the road is traversed by the dozer with the hydraulic ripper (3-4 steel hook like tines) cutting to a minimum 6-8 inch depth (depths will be deeper in many circumstances). This activity loosens and brings the stone aggregate to the top. The aggregate is then removed to the maximum extent practicable. Any associated filter fabric is also removed. In the rehabilitation of temporary access roads this first pass will remove all of the stone ripped by the dozer.
2. For projects in which all the stone was removed in the first pass, the dozer makes a second pass with the ripper adjusting the depth as soil conditions dictate. This further reduces any hardpan effects resulting from the months of construction activity.
3. In the majority of situations the first pass will extend below and remove all of the ballast stone. For projects with stone remaining below the depth of the first pass, following the first pass the dozer makes another pass with the ripper cutting again to a minimum 6-8 inch depth. Remaining stone is removed to the maximum extent practicable. The second pass will extend to a total depth of approximately 16 inches or greater below the original access surface and will extend below the depth of any remaining stone.
4. Next, suitable top soil (either stockpiled or brought in) is placed in the previously stoned area to return contours to preexisting grade. All areas of temporary access roads will be returned to preexisting contours.
5. The final steps involve incorporating lime, fertilizer, seed and straw to obtain a permanent vegetative cover as outlined in these Standards and Specifications.

Picture of Dozer with ripper attachment

Picture of finished ROW

APPENDIX D

List of Revisions

ORIGINAL:

Submitted by: D. L. Clarke **Date:** 02-03-04
Approved by: M. S. Allen **Date:** 02-03-04

REVISION:

Submitted by: D. L. Clarke **Date:** 03/15/06
Approved by: M. S. Allen **Date:** 03/15/06

REVISION:

Submitted by: D. L. Clarke **Date:** 01/29/07
Approved by: M. S. Allen **Date:** 01/29/07

REVISION:

Submitted by: D. L. Clarke **Date:** 11/14/07
Approved by: M. S. Allen **Date:** 11/14/07

REVISION:

Submitted by: J. R. Klotz **Date:** 10/30/08
Approved by: M. S. Allen **Date:** 10/30/08

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Submitted by: J. R. Klotz **Date:** 11/23/09
Approved by: M. S. Allen **Date:** 11/23/09

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REVISION:

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Approved by: M. S. Allen **Date:** 10/27/11

REVISION: (*dates changed***)**

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REVISION:

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Approved by: L. Schuelke **Date:** 11/17/14

REVISION:

Submitted by: T. Hester **Date:** 10/23/2017
Approved by: J. Williams **Date:** 10/23/2017

REVISION:

Submitted by: T. Hester **Date:** 12/12/2017
Approved by: J. Williams **Date:** 12/12/2017

REVISION:

Submitted by: T. Hester **Date:** 12/20/2018
Approved by: J. Williams **Date:** 12/20/2018

REVISION:

Submitted by: S. Ellis **Date:** 5/29/2019
Approved by: J. Williams **Date:** 5/29/2019

APPENDIX E

DEQ Guidance Memorandum #15-2003 (GM 15-2003)

APPENDIX F

Minimum Standards

MINIMUM STANDARDS PER 9 VAC 25-840-40

1. Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

2. During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.

3. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.

4. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.

5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.

6. Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.

    b. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.

    c. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment

basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.

7. Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.

8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.

9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.

10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.

11. Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.

12. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.

13. When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.

14. All applicable federal, state and local requirements pertaining to working in or crossing live watercourses shall be met.

15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.

16. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:

    a. No more than 500 linear feet of trench may be opened at one time.

    b. Excavated material shall be placed on the uphill side of trenches.

    c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.

    d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.

    e. Restabilization shall be accomplished in accordance with this chapter.

    f. Applicable safety requirements shall be complied with.

17. Where construction vehicle accesses intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.

18. All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

19. Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:

a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.

b. Adequacy of all channels and pipes shall be verified in the following manner:

(1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or

(2) (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.

(b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and

(c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.

c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:

(1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel, the bed, or the banks; or

(2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;

(3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or

(4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.

d. The applicant shall provide evidence of permission to make the improvements.

e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.

f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP authority of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.

g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all

detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.

h. All on-site channels must be verified to be adequate.

i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.

j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.

k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.

l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the

runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to Va. Code §§ 62.1-44.15:54 or 62.1-44.15:65.

m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of Va. Code § 62.1-44.15:52 A and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (Va. Code § 62.1-44.15:24, *et seq*.) and attendant regulations, unless such land-disturbing activities are in accordance with 9VAC25-870-48 of the VSMP Regulations.

n. Compliance with the water quantity Minimum Standards set out in 9VAC25-870-66 of the VSMP Regulations shall be deemed to satisfy the requirements of subdivision 19 of this subsection.

APPENDIX G

Stormwater Management Plan Requirements

STORMWATER MANAGEMENT PLAN REQUIREMENTS

1. A stormwater management (SWM) plan for a land-disturbing activity shall apply the SWM technical criteria for water quality and quantity set forth in the Virginia Stormwater Management Program (VSMP) regulations sections 9VAC25-870: -63, -65, and -66.
2. A SWM plan shall consider all sources of surface runoff and all sources of subsurface and groundwater flows converted to surface runoff.

A complete SWM plan shall include the following elements:

1. Information on the type of and location of stormwater discharges, information on the features to which stormwater is being discharged including surface waters or karst features if present, and pre-development and post-development drainage areas;
2. Contact information including the name, address, telephone number, and email address of the owner and the tax reference number and parcel number of the property or properties affected;
3. A narrative that includes a description of current site conditions and final site conditions or if allowed by the VSMP authority, the information provided and documented during the review process that addresses the current and final site conditions;
4. A general description of the proposed SWM facilities and the mechanism through which the facilities will be operated and maintained after construction is complete;
5. Information on the proposed SWM facilities, including (i) the type of facilities; (ii) location, including geographic coordinates; (iii) acres treated; and (iv) the surface waters or karst features into which the facility will discharge;
6. Hydrologic and hydraulic computations, including runoff characteristics;
7. Documentation and calculations verifying compliance with the water quality and quantity requirements of these regulations;
8. A map or maps of the site that depicts the topography of the site and includes:
    a. All contributing drainage areas;
    b. Existing streams, ponds, culverts, ditches, wetlands, other water bodies, and floodplains;
    c. Soil types, geologic formations if karst features are present in the area, forest cover, and other vegetative areas;

d. Current land use including existing electrical structures, roads, and locations of known utilities and easements;
e. Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels;
f. The limits of clearing and grading, and the proposed drainage patterns on the site;
g. Proposed buildings, roads, parking areas, utilities, and SWM facilities; and
h. Proposed land use with tabulation of the percentage of surface area to be adapted to various uses, including but not limited to planned locations of utilities, roads, and easements. Existing land cover conditions shall be shown on the plan by providing aerial photography, and in addition to the proposed land use tabulation, proposed land use shall be depicted on the plans;

A complete SWM plan may include off-site areas, including borrow sites or storage yards if applicable. These areas are incorporated into the project and the registration statement as applicable.

9. If an operator intends to meet the requirements established in 9VAC25-870-63 or 9VAC25-870-66 through the use of off-site compliance options, where applicable, then a letter of availability from the off-site provider must be included; and
10. If payment of a fee is required with the SWM plan submission by the VSMP authority, the fee and the required fee form in accordance with Part XIII (9VAC25-870-700, *et seq*.) must be submitted.

Elements of the SWM plans that include activities regulated under Chapter 4 (Va. Code § 54.1-400, *et seq*.) of Title 54.1 of the Code of Virginia shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (Va. Code § 54.1-400, *et seq*.) of Chapter 4 of Title 54.1 of the Code of Virginia.

A construction record drawing for permanent SWM facilities shall be submitted to the VSMP authority in accordance with 9VAC25-870-108 and 9VAC25-870-112. The construction record drawing shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia, certifying that the SWM facilities have been constructed in accordance with the approved plan.

Dominion Energy Plan Review personnel (as described in Section 2.0 of the Standards and Specifications) will verify whether a SWM plan is required for submission and will document that the required elements above are included, when applicable. In addition to the above elements, the following documentation will be reviewed and approved prior to initiating the land-disturbing activity, as applicable:

- If applicable, the Stormwater Pollution Prevention Plan (SWPPP), inclusive of registration statement, Pollution Prevention Plan, Erosion and Sediment Control Plan, and SWM Plan and Calculations;
- If a SWPPP and/or Construction General Permit (CGP) is required for a project, applicable Total Maximum Daily Load (TMDL) information and general information shall be included, in addition to the required registration statement.
- Post-construction maintenance requirements of permanent best management practices (BMPs), if applicable (See Section 7);
- Manufacturer's recommended maintenance and inspection of manufactured permanent BMPs (per the BMP clearing house);
- Post-construction inspection requirements for permanent BMPs;
- A map or digital file, including the appropriate base data, delineating the area treated by the BMP;
- A map or digital file, including the appropriate base data, depicting the applicable area used to determine percent impervious cover;

APPENDIX H

Case Studies

DEQ Response Letter to Case Study Analysis (dated 8/8/16)

CASE STUDIES

As approved in an August 8, 2016 letter from DEQ, and based upon the three case studies described below, if a project results in non-significant changes to the topography, the access roads are temporary, and maintains preexisting land cover (or in the worst case scenario, is converted from forest to open space and not a more intensive use), then the project will not require full stormwater analysis and meets the requirements for a GM 15-2003 SWM Plan Waiver.

The Surry-Skiffes 500 kV Phase 2 project, located in James City County, Virginia, consisted of approximately 3.7 miles of new ROW with an average width of approximately 150 feet. An evaluation of consistency with GM 15-2003 dated August 17, 2015 was submitted to DEQ for review. On January 7, 2016, DEQ provided notice that they conducted a courtesy review of the stormwater documents prepared for the Surry-Skiffes 500 kV Phase 2 project. That review confirmed that a stormwater management plan was not required, provided the temporary access roads were removed following the completion of construction and the underlying areas were returned to their pre-construction land cover condition. The VSMP coverage was subsequently issued for the Surry-Skiffes 500 kV Phase 2 project.

The DuPont Relocation Project located in Loudoun County, Virginia consisted of approximately 1.68 miles of new 100 foot ROW. An evaluation of consistency with GM 15-2003 dated November 18, 2015 was submitted to DEQ for review. On December 30, 2015, DEQ provided notice that they conducted a courtesy review of the stormwater documents prepared for the DuPont project and confirmed that a stormwater management plan was not required. The VSMP coverage was subsequently issued for the DuPont project.

The Pacific project, located in Loudoun County, Virginia consisted of approximately 1.8 miles of new approximate 100 foot ROW. An evaluation of consistency with GM 15-2003 dated November 12, 2015 was submitted to DEQ for review. The 2-year, 10-year, and 25-year flows were evaluated for water quantity. The overall net impact as contained within the stormwater plans demonstrated a reduction in stormwater runoff. There was no significant increase in runoff

for each outfall; and therefore, no post-development stormwater practices were necessary for water quality compliance. No post-development stormwater devices were required for water quality compliance. On December 30, 2015, DEQ provided notice that they conducted a courtesy review of the stormwater documents prepared for the Pacific project and confirmed that a stormwater management was not required. The VSMP coverage was subsequently issued for the Pacific project.